



C A T A L O G 7 0 0 - A

ARMSTRONG TOOLS

ARMSTRONG BROS. TOOL CO. CHICAGO, ILLINOIS 60646

GRAND PRIZE WINNERS

ARMSTRONG Tools have won highest honors at every great exposition entered, from the Universal Exposition at Paris in 1900 to the present day—thus confirming the favorable judgment of practical machinists based upon many years satisfactory service.



Universal Exposition
Paris, 1900
Two Bronze Medals
Highest Award



World's Fair
St. Louis, 1904
Gold Medal
Highest Award



Universal Exposition
Liege, 1905
Bronze Medal
Highest Award



GRAND PRIZE—MEDAL OF HONOR

Panama-Pacific International
Exposition, San Francisco
1915
The Two Highest Awards
Conferred



Franklin Institute
Medal of Merit

TRADE



MARK

REG. IN U. S. PAT. OFFICE

OTHER TRADEMARKS REG. IN U. S. PAT. OFFICE

ARMSTRONG

ARMALLOY

ARMIDE

HI-TEN

ARMSTRONG BROS.



ARMSTRONG QUICK CHANGE TOOL SYSTEM

TOOL POST

Three usable sides.
Machine in either direction.
Save time, improve efficiency.



Cat. No.	Height of Block, In.	Width of Block, In.	For Lathes Swing In.	Approx. Wt. Lbs.
QC-4	2½	2½	Up to 13	5.25
QC-5	3	3	10 to 16	8.40
QC-6	3¼	3½	13 to 19	13.00
QC-8	4	4	14 to 21	22.00

KNURLING TOOL HOLDERS

Revolving head, self-centering.
Furnished with 3 pairs of high speed knurls



Cat. No.	Knurling Cap., In.	Diam. Knurls, In.	Use with Tool Post No.	Approx. Wt. Lbs.
4E-QC	3/16 Up	5/8	QC-4	2.10
5E-QC	3/16 Up	5/8	QC-5	2.25
6E-QC	1/4 Up	3/4	QC-6	3.50
8E-QC	1/4 Up	3/4	QC-8	5.25

TURNING AND FACING TOOL HOLDERS

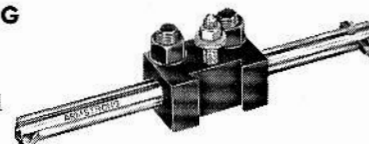
Takes Turning and Facing Tool Bits



Cat. No.	Tool Bit Size In.	Use With Tool Post No.	Approx. Wt. Lbs.
4A-QC	3/16 to 1/2	QC-4	1.00
5A-QC	3/16 to 5/8	QC-5	1.30
6A-QC	1/2 to 7/8	QC-6	2.25
8A-QC	1/2 to 1	QC-8	3.90

HEAVY DUTY BORING TOOL HOLDERS

Furnished with Boring Bar and Two high speed Tool Bits

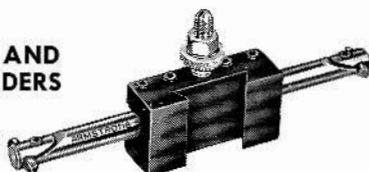


Cat. No.	Bar Diam. In.	*Bushing No.	I.D. In.	Use With Tool Post No.	Approx. Wt. Lbs.
4G1-QC	3/4	4G-184	9/16	QC-4	3.70
5G1-QC	15/16	4G-289	3/4	QC-5	7.35
6G1-QC	15/16	6G-189	3/4	QC-6	10.75
8G1-QC	1 1/8	8G-193	15/16	QC-8	16.50
4G2-QC	15/16	4G-289	3/4	QC-4	5.50
5G2-QC	1 1/8	5G-293	15/16	QC-5	10.50
6G2-QC	1 1/8	6G-293	15/16	QC-6	15.30
8G2-QC	1 5/8	8G-296	1 1/8	QC-8	22.00

*Not furnished with tool, order separately.

TURNING, FACING AND BORING TOOL HOLDERS

V-Slot holds Round Boring Bars as well as Square Tool Bits

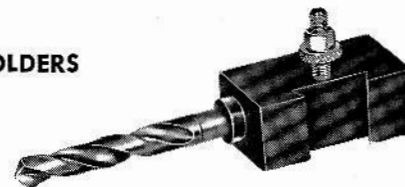


Cat. No.	Tool Bit Size In.	Boring Bar Diam. In.	Use With Tool Post No.	Approx. Wt. Lbs.
4B-QC	3/16 to 1/2	3/16 to 1/2	QC-4	1.00
5B-QC	3/16 to 5/8	3/16 to 5/8	QC-5	1.30
6B-QC	1/2 to 7/8	1/2 to 3/4	QC-6	2.25
8B-QC	1/2 to 1	1/2 to 15/16	QC-8	3.90

DRILLING TOOL HOLDERS

For #2, #3, #4 Morse Taper Drills

Drills with power feed from carriage



Cat. No.	Hole Size Morse Taper	Use With Tool Post No.	Approx. Wt. Lbs.
4H2-QC	#2	QC-4	1.90
5H2-QC	#2	QC-5	2.55
4H3-QC	#3	QC-4	2.25
5H3-QC	#3	QC-5	2.80
6H3-QC	#3	QC-6	4.00
8H3-QC	#3	QC-8	5.80
6H4-QC	#4	QC-6	4.75
8H4-QC	#4	QC-8	6.10

CUT-OFF TOOL HOLDERS

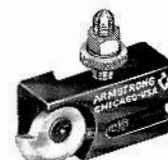
Blade supported full length of holder. Furnished with high speed cut-off blade



Cat. No.	Blade Size In.	Use With Tool Post No.	Approx. Wt. Lbs.
4D-QC	3/32 x 1/2	QC-4	1.25
5D-QC	3/32 x 5/8	QC-5	1.60
6D-QC	1/8 x 3/4	QC-6	2.75
8D-QC	3/16 x 1	QC-8	4.25

THREADING TOOL HOLDERS

Furnished with high speed sharp V-Thread Cutter



Cat. No.	Thread Cutter No.	Use With Tool Post No.	Approx. Wt. Lbs.
4J-QC	8151	QC-4	1.00
5J-QC	8153	QC-5	1.60
6J-QC	8155	QC-6	2.65
8J-QC	8157	QC-8	4.20



ARMSTRONG BORING HEADS

- Large adjustment range—often eliminates offset bars and special set-ups.
- Graduations widely spaced and easily read—permit adjustments of .0005 and less.
- Generous bearing surface—permits heavy roughing cuts, more accurate finish cuts.
- All parts subject to wear are hardened to guarantee long life and sustained accuracy.



Double Bar Holders.

BORING HEADS



Single Bar Holders.

fits boring head shanks BHS-1 thru BHS-6

Cat. No.	Actual Size In.	Overall Lgth. In.	Size		Offset	Standard Package	Weight Lbs.
			Boring Bar, Hole	Cross Hole			
BH-15*	1½ Sq.	2¼	1½" rd.	—	¾"	1	1.06
BH-15A*	1½ Sq.	2¼	¾" rd.	—	¾"	1	1.08
BH-20*	2 Sq.	2¼	1½" rd.	—	1½"	1	2.00
BH-20A*	2 Sq.	2¼	¾" rd.	—	1½"	1	2.00
BH-102**	2 rd.	2½	1½" rd.	1½"	1½"	1	1.40
BH-102A**	2 rd.	2½	¾" rd.	1½"	1½"	1	1.40

fits boring head shanks BHS-20 thru BHS-26

BH-30*	3 Sq.	3	1" rd.	—	1½"	1	5.25
BH-103**	3 rd.	3¼	¾" rd.	¾"	¾"	1	4.00
BH-104**	4 rd.	3¼	1" rd.	1"	1½"	1	7.80

*Single Bar Holders.

**Double Bar Holders.

BORING HEAD SHANKS



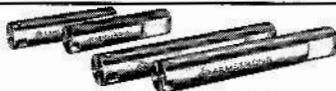
fits boring heads BH-15 thru BH-102A

Cat. No.	Description	Standard Package	Weight Lbs.
BHS-1	Straight, ½" Dia.	1	.38
BHS-2	Straight, ⅝" Dia.	1	.47
BHS-3	Straight, ¾" Dia.	1	.60
BHS-4	Straight, 1" Dia.	1	.69
BHS-5	Moore Adapter	1	.94
BHS-6	R-8 Bridgeport	1	1.00

fits boring heads BH-30 thru BH-104

BHS-20	40 National	1	2.00
BHS-21	50 National	1	5.50
BHS-22	4 Morse	1	1.75
BHS-23	R-8 Bridgeport	1	1.35
BHS-24	Straight, 1" Dia.	1	1.25
BHS-25	Straight, 1½" Dia.	1	1.94
BHS-26	Straight, 1½" Dia.	1	3.00

BORING BARS



Cat. No.	Diam., In.	Length In.	Angle of Tool Bit, In.	Tool Bit Size Sq. In.	Standard Package	Weight Lbs.
BB-1	1½	4½	45°	¾"	1	.25
BB-2	1½	4½	90°	¾"	1	.25
BB-3*	1½	4½	45°	¾"	1	.25
BB-4	1	6	45°	½"	1	1.25
BB-5	1	6	90°	½"	1	1.40
BB-6	¾	6	45°	¼"	1	.80
BB-7	¾	6	90°	¼"	1	.80
BB-8*	¾	6	45°	¼"	1	.75
BB-9*	1	6	45°	½"	1	1.25

*For Cross Hole.

ARMSTRONG Boring Heads have a threaded back which can be fitted with interchangeable shanks, permitting their use on a wide range of machines including drill presses, jig boring machines, turret lathes, grinders, vertical and horizontal mills and engine lathes. Compact design insures maximum tool rigidity which produces smoother, more accurately bored holes and permits them to be used with specially ground boring cutters for special machining operations such as chamfering, O.D. turning and facing.

BORING CUTTERS



Cat. No.	Min. Boring Diam., In.	Shank Diam., In.	Overall Length, In.	Max. Boring Depth, In.	Standard Package	Weight Lbs.
BC-1HS	⅛	⅜	2	½	5	.10
BC-2HS	⅜	⅜	2½	1½	5	.10
BC-3HS	¼	⅜	2½	1½	5	.10
BC-4HS	⅝	⅜	2½	1½	5	.12
BC-5HS	⅝	¾	3½	1¾	5	.12
BC-6HS	½	¾	3½	2½	5	.20
BC-10HS	⅛	½	2	½	5	.12
BC-11HS	⅜	½	2½	1½	5	.12
BC-12HS	¼	½	2½	1½	5	.13
BC-13HS	⅝	½	2½	1½	5	.13
BC-14HS	⅝	½	3½	1¾	5	.18
BC-15HS	½	½	3½	2½	5	.18
BC-20HS	½	¾	3½	2½	1	.34
BC-21HS	¾	¾	4½	2½	1	.44
BC-22HS	1	¾	4½	3½	1	.59
BC-30HS	½	1	3½	2½	1	.66
BC-31HS	¾	1	4½	2½	1	.59
BC-32HS	1	1	4½	3½	1	.66

BORING CUTTER SETS

Set No. BCS-375 ⅜" Shank dia.

Consists of six boring cutters in cardboard box. Approx. weight .50 lb.

Cat. No.	BC-1HS	BC-2HS	BC-3HS	BC-4HS	BC-5HS	BC-6HS
Min. Boring Dia., In.	⅛	⅜	¼	⅝	⅜	½
Max. Boring Depth, In.	½	1½	1½	1½	1¾	2½

Set No. BCS-500 ½" Shank dia.

Consists of six boring cutters in cardboard box. Approx. weight .70 lb.

Cat. No.	BC-10HS	BC-11HS	BC-12HS	BC-13HS	BC-14HS	BC-15HS
Min. Boring Dia., In.	⅛	⅜	¼	⅝	⅜	½
Max. Boring Depth, In.	½	1½	1½	1½	1¾	2½

Set No. BCS-750 ¾" Shank dia.

Consists of three boring cutters in cardboard box. Approx. weight 1.60 lbs.

Cat. No.	BC-20HS	BC-21HS	BC-22HS
Min. Boring Dia., In.	½	¾	1
Max. Boring Depth, In.	2½	2½	3½



ARMSTRONG ARMALLOY WRENCHES

Drop Forged—Selected Alloy Steel

COMBINATION OPEN END AND BOX PATTERN



Extra Long Pattern
Gray Enamel Finish

Cat. No.	Nominal Opening Inches (Both ends)	Approx. Extreme Length, In.	Approx. Weight Lbs.
G60L	$\frac{3}{8}$	$7\frac{1}{8}$	.09
G61L	$\frac{7}{16}$	$7\frac{7}{8}$	.14
G62L	$\frac{1}{2}$	$8\frac{5}{8}$	.16
G63L	$\frac{9}{16}$	$9\frac{5}{8}$	.21
G64L	$\frac{5}{8}$	$10\frac{3}{8}$	.30
G65L	$\frac{11}{16}$	$11\frac{1}{8}$	.37
G66L	$\frac{3}{4}$	$11\frac{1}{8}$	.46
G67-AL	$\frac{13}{16}$	$12\frac{1}{8}$	.56
G67L	$\frac{7}{8}$	$12\frac{1}{8}$	.75
G68L	$\frac{15}{16}$	$13\frac{1}{8}$	1.13
G70L	1	$14\frac{1}{8}$	1.13
G71L	$1\frac{1}{16}$	15	1.75
G72L	$1\frac{1}{8}$	15	1.75
G73L	$1\frac{1}{4}$	$18\frac{1}{8}$	2.56

BOX SOCKET PATTERN



Long Pattern
Gray Enamel Finish

Cat. No.	Nominal Opening Inches	Approx. Extreme Length, In.	Approx. Weight Lbs.
G8723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{4}$	.26
G8725	$\frac{7}{16}$ & $\frac{1}{2}$	$8\frac{1}{4}$	.37
G8725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$8\frac{3}{4}$	.43
G8727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{3}{4}$	.59
G8729	$\frac{5}{8}$ & $\frac{3}{4}$	11	.80
G8029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.84
G8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
G8731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
G8033-C	$\frac{15}{16}$ & 1	$14\frac{1}{2}$	1.14
G8735-A	$1\frac{1}{16}$ & $1\frac{1}{8}$	17	2.30
G8037	$1\frac{1}{16}$ & $1\frac{1}{4}$	17	2.10

Micrometer-Adjustable TORQUE WRENCHES



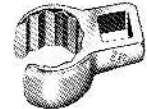
Cat. No.	Drive	Range	Graduation	Max. Lgth., In.	Wt. Lb.
NTW-14	$\frac{1}{4}$ In.	5-150 in.-lb.	2 in.-lb.	$10\frac{1}{8}$	.8
FTW-16	$\frac{3}{8}$ In.	5-75 ft.-lb.	$\frac{1}{2}$ ft.-lb.	$14\frac{5}{16}$	1.3
STW-18	$\frac{1}{2}$ In.	5-75 ft.-lb.	$\frac{1}{2}$ ft.-lb.	$14\frac{5}{16}$	1.3
STW-20	$\frac{1}{2}$ In.	10-150 ft.-lb.	1 ft.-lb.	$18\frac{5}{16}$	2
HTW-22	$\frac{3}{4}$ In.	100-500 ft.-lb.	4 ft.-lb.	40	10.6

ARMSTRONG ARMALLOY CROWFOOT ATTACHMENTS



$\frac{3}{8}$ Inch Square Drive
Open End Crowfoot

Cat. No.	Nominal Opening Inches	Length Overall Inches	Approx. Weight Lb.
FO-112	$\frac{3}{8}$	$2\frac{1}{16}$	.125
FO-114	$\frac{7}{16}$	$2\frac{1}{8}$	.141
FO-116	$\frac{1}{2}$	$2\frac{1}{8}$	.134
FO-118	$\frac{9}{16}$	$2\frac{7}{32}$	.144
FO-120	$\frac{5}{8}$	$2\frac{7}{32}$	.138
FO-122	$\frac{11}{16}$	$2\frac{5}{16}$	.215
FO-124	$\frac{3}{4}$	$2\frac{5}{16}$	.200
FO-128	$\frac{7}{8}$	$2\frac{3}{8}$	.241



$\frac{3}{8}$ Inch Square Drive
Box Type Crowfoot

Cat. No.	Nominal Opening Inches	Length Overall Inches	Approx. Weight Lb.
FB-120	$\frac{5}{8}$	$1\frac{3}{8}$	.081
FB-122	$\frac{11}{16}$	$1\frac{1}{2}$	.078
FB-124	$\frac{3}{4}$	$1\frac{1}{2}$	.073
FB-126	$\frac{13}{16}$	$1\frac{5}{8}$	.108
FB-128	$\frac{7}{8}$	$1\frac{5}{8}$	.125
FB-130	$\frac{15}{16}$	$1\frac{3}{4}$	.131
FB-132	1	$1\frac{7}{8}$	.133



$\frac{1}{2}$ Inch Square Drive
Open End Crowfoot

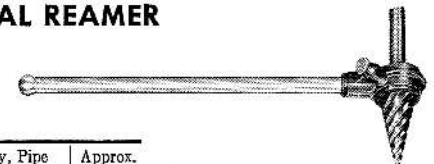
Cat. No.	Nominal Opening Inches	Length Overall Inches	Approx. Weight Lb.
SO-130	$\frac{15}{16}$	$2\frac{13}{16}$	.375
SO-132	1	$2\frac{13}{16}$	.366
SO-134	$1\frac{1}{16}$	$2\frac{29}{32}$	.475
SO-136	$1\frac{1}{8}$	$2\frac{29}{32}$	.444
SO-140	$1\frac{1}{4}$	$2\frac{7}{32}$	.475
SO-144	$1\frac{3}{8}$	$3\frac{9}{64}$	.563
SO-146	$1\frac{7}{16}$	$3\frac{3}{4}$	.694
SO-148	$1\frac{1}{2}$	$3\frac{3}{8}$	.669
SO-152	$1\frac{5}{8}$	$3\frac{17}{32}$	.744
SO-156	$1\frac{3}{4}$	$3\frac{7}{8}$	.919
SO-158	$1\frac{13}{16}$	$3\frac{7}{8}$	.875



$\frac{1}{2}$ Inch Square Drive
Box Type Crowfoot

Cat. No.	Nominal Opening Inches	Length Overall Inches	Approx. Weight Lb.
SB-136	$1\frac{1}{8}$	$2\frac{1}{8}$	.213
SB-140	$1\frac{1}{4}$	$2\frac{5}{16}$	.231
SB-142	$1\frac{5}{16}$	$2\frac{5}{16}$	.231
SB-144	$1\frac{3}{8}$	$2\frac{3}{8}$	.284
SB-146	$1\frac{7}{16}$	$2\frac{1}{2}$	.303
SB-148	$1\frac{1}{2}$	$2\frac{1}{2}$	.266
SB-152	$1\frac{5}{8}$	$2\frac{5}{8}$	.344
SB-154	$1\frac{11}{16}$	$2\frac{3}{4}$	.413
SB-156	$1\frac{3}{4}$	$2\frac{7}{8}$	.406

ARMSTRONG SELF-FEEDING SPIRAL REAMER

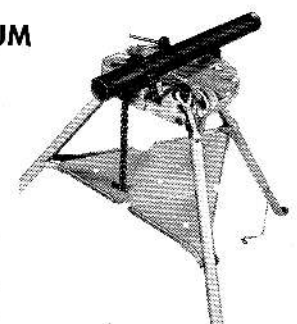


Cat. No.	Capacity, Pipe Size, In.	Approx. Wt. Lbs.
R-1172	$\frac{1}{8}$ to 2	8.5
R-72	Reamer only	2.75



Reamer only

ARMSTRONG ALUMINUM PIPE VISE STAND



Cat. No.	Capacity of Vise, Pipe, Size, In.	Approx. Wt. Lbs.
938	$\frac{1}{8}$ to 5	28.5



ARMSTRONG ARMALLOY POWER DRIVE SOCKETS

Standard Length
Single Hexagon Openings
Finish—Rust Resistant

"8" SERIES—1½" SQUARE DRIVE

Nominal Opening Inches	No.	Length Overall Inches	Depth Opening Inches	Approx. Wt., Lb.
15/16	8-642	3 1/8	49/64	4.00
13/8	8-644	3 1/8	49/64	4.30
17/16	8-646	3 1/8	49/64	4.40
1 1/2	8-648	3 1/8	7/8	4.40
15/8	8-652	3 1/8	7/8	4.50
111/16	8-654	3 1/8	1	4.40
113/16	8-658	3 1/4	1 1/32	5.00
17/8	8-660	3 1/4	1 3/32	4.40
2	8-664	3 3/4	1 3/32	5.60
23/16	8-670	3 3/8	1 13/64	6.60
2 1/4	8-672	4	1 9/16	6.60
23/8	8-676	4 1/8	1 13/16	7.60
2 1/2	8-680	4 1/4	1 23/64	7.90
29/16	8-682	4 1/4	1 25/64	7.90
25/8	8-684	4 1/4	1 1/2	8.30
23/4	8-688	4 3/8	1 1/2	8.80
27/8	8-692	4 1/2	1 19/32	9.50
2 5/8	8-694	4 1/2	1 39/64	9.50
3	8-696	4 5/8	1 23/32	9.50
3 1/8	8-6100	4 5/8	1 23/32	11.40
3 3/8	8-6108	4 5/8	1 59/64	11.00
3 1/2	8-6112	4 5/8	1 59/64	12.40



ARMSTRONG CHISELS AND PUNCHES

Center Punches



No.	Point Diam. Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3395	...	5/16	4 1/4	.08

Extra Long Cold Chisels



No.	Width of Cut Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3491	5/8	1 1/2	12	.67
3492	3/4	5/8	12	1.00
3496	3/4	5/8	18	1.60
3498	1	3/4	12	1.50
3499	1	3/4	18	2.30

Prick Punches



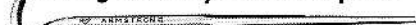
No.	Point Diam. Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3322	...	5/8	4 1/2	.29
3323	...	1/2	5 1/2	.38

Long Taper Punches



No.	Point Diam. Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3378	5/16	5/8	11	1.00

Rolling Head Pry and Line-Up Bar



No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3451	1/2	15	.95

Pinch Bar



No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3431	3/4	20	1.85

ARMSTRONG ARMALLOY

BLACK FINISH SOCKETS
1/4" SQUARE DRIVE



6-Point Opening

Nominal Opening Inches	No.	Approx. Wt., Lb.
3/16	NMB606	.02
7/32	NMB607	.02
1/4	NMB608	.02
9/32	NMB609	.02
5/16	NMB610	.02
11/32	NMB611	.03
3/8	NMB612	.03
7/16	NMB614	.04
1/2	NMB616	.05



Deep, 6-Point Opening

Nominal Opening Inches	No.	Approx. Wt., Lb.
3/16	NMDB608	.03
7/32		
1/4		
9/32	NMDB610	.04
5/16		
11/32		
3/8	NMDB612	.04
7/16		
1/2	NMDB614	.04

3/8" SQUARE DRIVE



12-Point Opening

Nominal Open., In.	No.	Approx. Wt., Lb.
1/4	FB1208	.04
5/16	FB1210	.05
3/8	FB1212	.05
7/16	FB1214	.05
1/2	FB1216	.06
9/16	FB1218	.07
5/8	FB1220	.09
11/16	FB1222	.11
3/4	FB1224	.13

1/2" SQUARE DRIVE



12-Point Opening

Nominal Open., In.	No.	Approx. Wt., Lb.
7/16	STB1214	.13
1/2	STB1216	.13
9/16	STB1218	.13
5/8	STB1220	.19
11/16	STB1222	.19
3/4	STB1224	.19
13/16	STB1226	.25
7/8	STB1228	.25
15/16	STB1230	.31

BLACK FINISH DRIVE PARTS



Ratchets

Drive Size	Cat. No.	Description	Approx. Wt., Lb.
1/4	NMB91	4 3/4" reversible	.22
3/8	FAB51	7" reversible	.56
3/8	FAB50	7" plug type	.50
1/2	SAB51	10 1/2" reversible	1.25
1/2	SAB50	10 1/2" plug type	1.13
3/4	HAB51	19" reversible	5.00



Sliding "T" Handles

Drive Size	Cat. No.	Description	Approx. Wt., Lb.
3/8	FB20A	8" long	.30
1/2	SB20A	11" long	1.00
3/4	HB20A	17 1/2" long	2.75



Hinge Handles

1/4	NMB42	5 1/4" long	.19
3/8	FB40	8 1/2" long	.56
1/2	SB41	17" long	2.00
3/4	HB41	22" long	3.25



Extensions

1/4	NMB102	2" long	.06
1/4	NMB115	6" long	.16



Plug Connectors

3/8	FB150	3/8" male	.20
1/2	SB150	1/2" male	.25



Plug Adapters

3/8 M	FMB150	1/4" male	.05
3/8 M	FMB151	1/2" male	.18

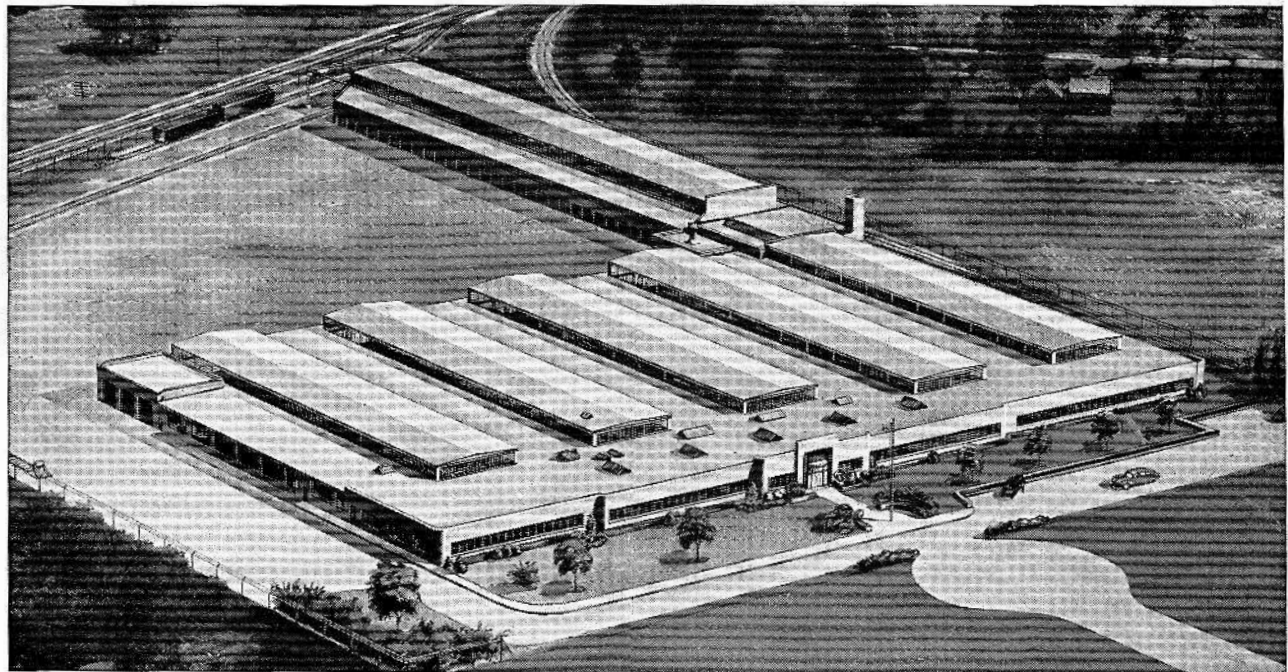
ARMSTRONG BROS. TOOL CO.

Founded in 1890

THE TRADE MARK



OF QUALITY



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MANUFACTURERS OF

TOOL HOLDERS, TURRET LATHE AND SCREW MACHINE TOOLS, TOOL BITS, BLADES, CUTTERS, AND MACHINE SHOP SPECIALTIES, LATHE AND MILLING MACHINE DOGS, CLAMPS, RATCHET DRILLS AND DRILLING POSTS; ALL TYPES OF WRENCHES, DETACHABLE SOCKETS, AND DRIVE PARTS; PIPE THREADERS AND CUTTERS, PIPE VISES AND VISE STANDS, PIPE WRENCHES AND TONGS, AND TUBE WORKING TOOLS.

CATALOG 700-A

CATALOG 700-A SUPERSEDES ALL PREVIOUS EDITIONS

WHEN ORDERING, specify our catalog number and the name of the item desired.

PRICES for the tools or items in this catalog are shown in a separate price list which we will gladly furnish upon request. Prices are subject to change without notice.

ALL FINISHES, MATERIALS AND DESIGNS as mentioned in this catalog are subject to change without notice.

DIMENSIONS:—All dimensions are shown in inches unless otherwise stated.

DELIVERY: F.O.B. cars, Chicago, Ill., U.S.A. Title and right of possession will pass to customer upon delivery to carrier at Chicago, Ill.

SHORTAGE CLAIMS: No claims will be allowed for shortages or other discrepancies unless reported within 10 days after receipt of shipment.

RETURNED GOODS POLICY: No merchandise (other than covered by our guarantee, as stated below) may be returned without first receiving permission from our General Office, Chicago. Discontinued items are not returnable.

GUARANTEE: If any ARMSTRONG Tool fails to give *complete satisfaction* and has not been abused or altered, return it to our factory in Chicago, Illinois, U.S.A., transportation charges paid, and it will be repaired or replaced free of charge. No claim for damages of any nature will be allowed, and all our products are sold with this express understanding.

Industrial Distributors provide the most economical and efficient means by which we can get ARMSTRONG Tools from our plant to you. Your local ARMSTRONG DISTRIBUTOR maintains, in stock, ready for immediate delivery, a broad selection of ARMSTRONG Tools.

Because your ARMSTRONG DISTRIBUTOR has helped solve a variety of problems in a variety of shops, he is well equipped to furnish helpful ideas, suggestions and product information that will assist you in utilizing ARMSTRONG Tools to operate your plant and equipment more profitably.



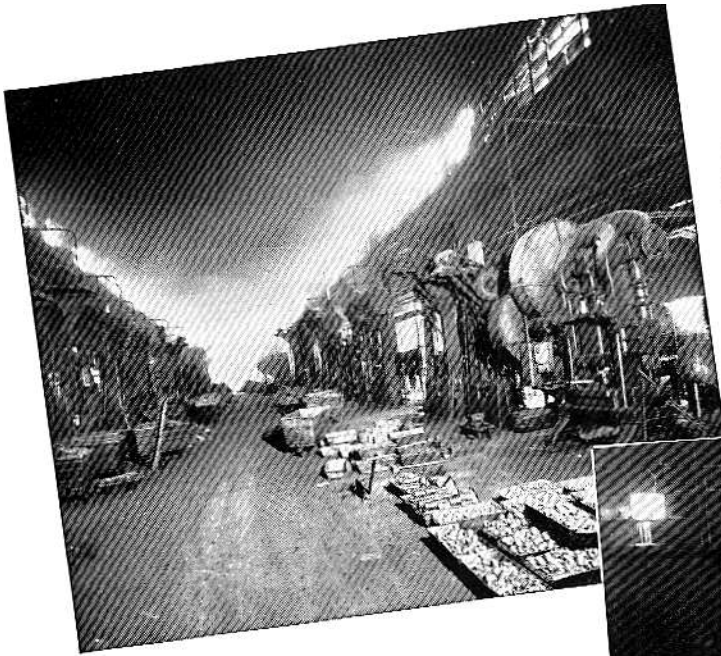
Man . . .

Without tools he is nothing
with tools he is all . . .

Thomas Carlyle

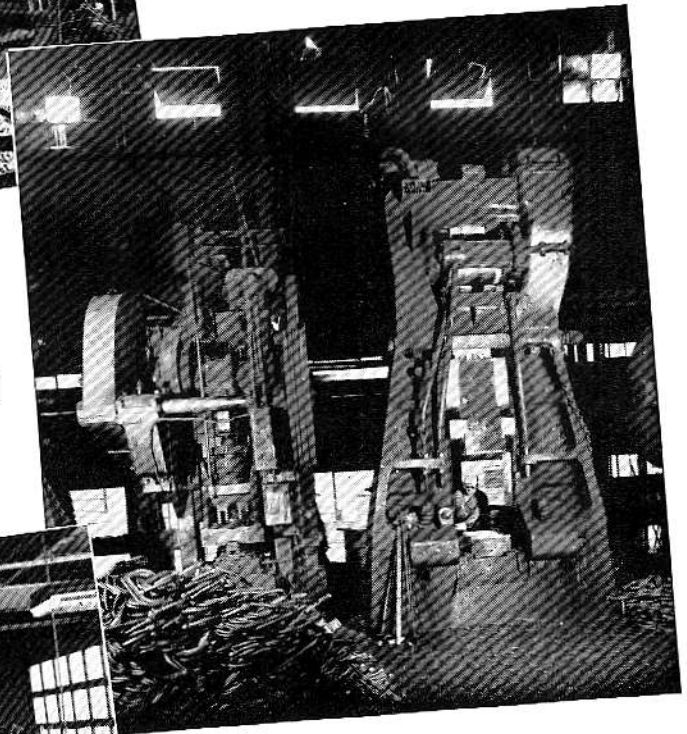


The Trade Mark of Quality



Drop Forge Hammers—
from foreground to distant end
of building

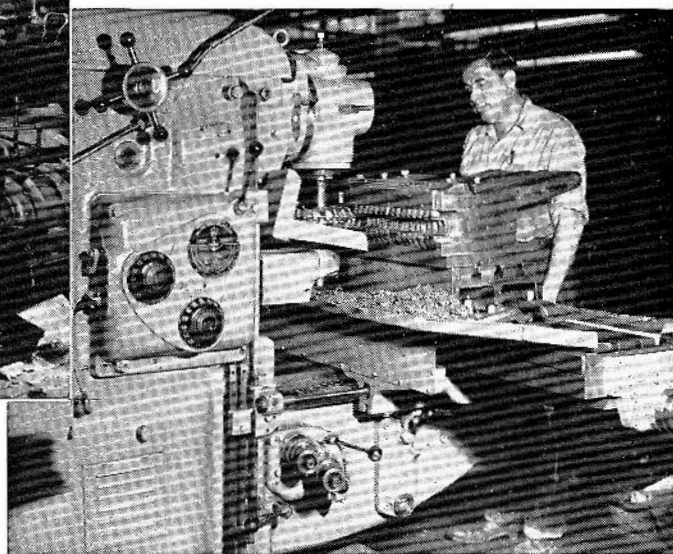
One of a number of forging units
in our forge shop



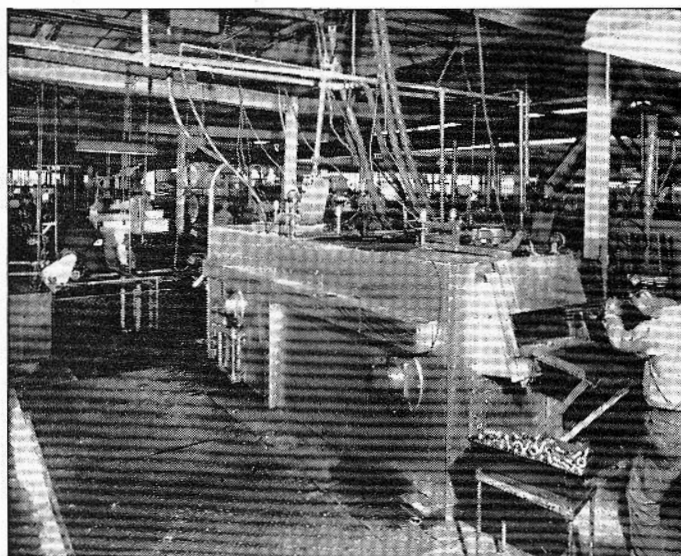
Automatic Screw machine department



Broaching anvils of "C" Clamps

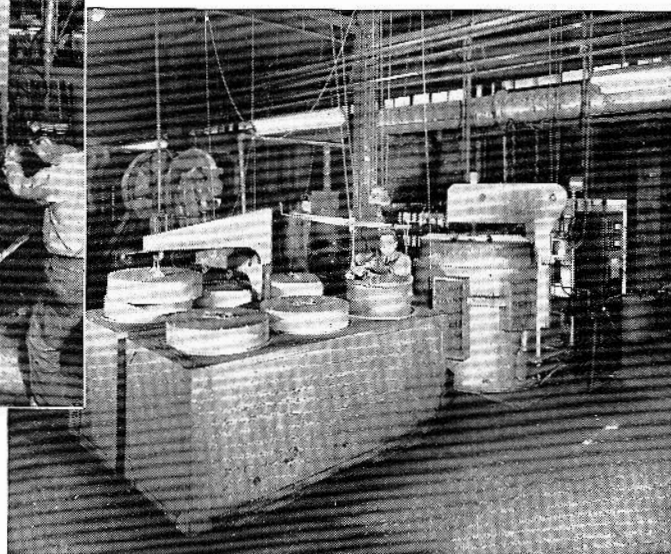


Gang Milling openings of
Engineers' Wrenches

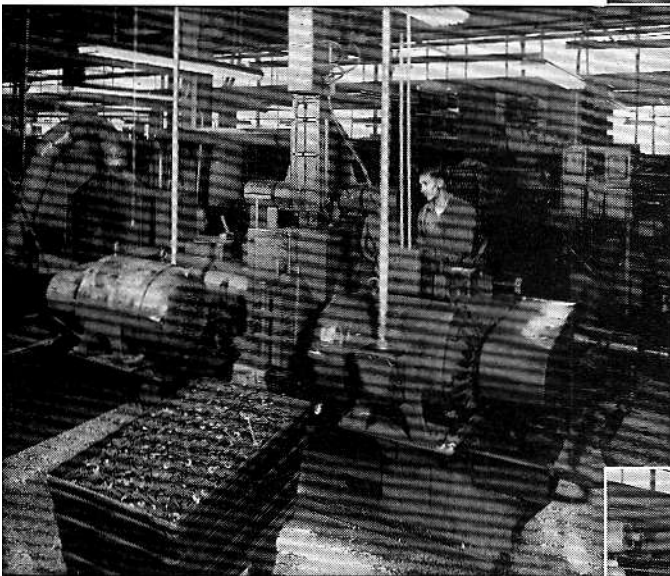


Atmospheric controlled electric furnaces
of the finest type
assure proper heat treatment

One of our electric annealing and
normalizing furnaces



View of machining departments



Automatic grinding of heads
of open end wrenches

A large inventory of finished tools
enables us to make prompt deliveries
on catalog stock tools



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THE ARMSTRONG SYSTEM OF TOOL HOLDERS

A Complete, Economical and Efficient System of Lathe, Planer and Shaper Tools

The ARMSTRONG Tool Holder System

The "ARMSTRONG" Tool Holder System provides superior tools for every operation on Lathes, Planers and Shapers, most operations on Turret Lathes and Screw Machines as well as tools adaptable for use on Boring Mills and other Machine Tools.

The ARMSTRONG Design Principle

All ARMSTRONG Tool Holders incorporate the basic ARMSTRONG principle of permanent shanks or tool holders which hold inserted tool bits or cutters made of high speed steel, carbide, cast alloy or any other cutting material.

Ends Tooling-up Delays

Today in modern machine shops men and machines do not stand idle waiting while the old time "tool dresser" forges out a cumbersome single purpose tool for each operation. The "tool dresser" has been made ancient history by the ARMSTRONG Tool Holder System. Today each turning machine operator either draws the proper ARMSTRONG Tool Holder and tool bit from the shop tool crib or quickly grinds his own tool bits for use in the ARMSTRONG Tool Holders that are standard equipment on the turning machine he operates.

With ARMSTRONG Tool Holders setting-up is reduced to choosing the tool bit, cutter, or blade, inserting it in the tool holder, adjusting for height and clearance, tightening the bit or blade fastener, pulling down on the tool post screw and the operator is ready to start cutting.

Reduced Inventory of High Speed Steel, Carbides etc.

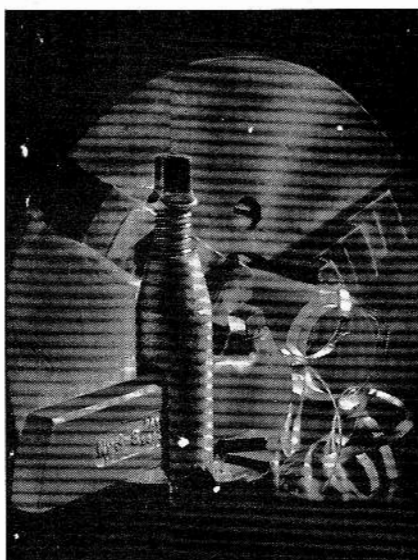
Where previously large stocks of expensive high speed steel, cast alloy bars, solid bar tools and even carbide tipped tools were required, now the work can be done with cutter bits and blades that weigh but a few ounces as compared to pounds in solid tools.

A Correct Tool Holder for Each Operation

There is a correct ARMSTRONG Tool Holder designed for every needed operation—a tool holder designed to give the proper approach to the work, greater strength, the maximum clearance, to hold the cutter at the correct cutting angle . . . to be in every way the most efficient tool that can be made for the specific operation. True efficiency is best obtained by using the correct ARMSTRONG Tool Holder for each operation.

Higher Speeds and Heavier Feeds

Cutting speeds generally accepted as "standard" are no measure of modern machine tools or tool holder capacities. With the recent improvements



in cutting agents and the use of modern ARMSTRONG Tool Holders, safe speeds and feeds are usually limited only by the power and the speed of the machine tool itself. A study in proper use of tool holders and cutting speeds will often reveal ways to greatly increase the output of your present turning machines.

Most Efficient Tools Available, Most Economical

Designed with a full knowledge of machine tool requirements gained from over sixty years of specialization in the design, manufacture and sale of ARMSTRONG Tool Holders . . . embodying the refinements in material and design developed

through long and continuous research and test, and the experience gained through world wide use, ARMSTRONG Tool Holders are the most efficient tools obtainable.

They are produced by modern manufacturing methods in one of the finest modern plants in the country. Their strength, uniformity and accuracy of form give them inherent qualities we believe impossible to achieve in individually made solid bar tools.

Governs the Efficiency of the Machine Tool

The actual work of any cutting machine tool is done by its cutting point. And, no cutting machine tool can be more efficient than its cutter and the tool holder that holds it.

With the cost of any ARMSTRONG Tool Holder so insignificant when compared to the high cost of machine tools and man hours, whose efficiency it governs, it is sound shop practice to always fully equip every machine tool in your shop with ARMSTRONG Tool Holders.

New ARMSTRONG Tool Holders

While over 96% of the machine shops and tool rooms in the U.S.A. use ARMSTRONG Tool Holders, many do not use the correct tool holders for all operations. This is due in part to habit and to lack of familiarity with the newer ARMSTRONG Tool Holders recently developed to meet modern machining conditions and materials.

It is good shop practice, therefore, to periodically check your tool holder and tooling equipment against an up to the minute ARMSTRONG Catalog to be sure that your tooling methods are keeping up with the developments in the field.

Where to buy ARMSTRONG Tool Holders

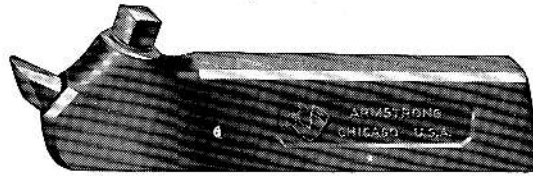
ARMSTRONG Tool Holders and tools are carried in stock by all leading Industrial Supply Distributors. If your local Supply House can not fill your needs we ask you to contact us direct and we will have one of our own sales engineers contact you at the first opportunity.



ARMSTRONG TURNING TOOL HOLDERS

ARMSTRONG Turning Tool Holders are drop forged from a special steel and are accurately machined, heat treated and hardened. The set screws are made of heat treated alloy steel with hardened point.

Straight Shank



Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

No.	Size of Holder Inches	Size of Tool Bit Square, Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
000-S	$\frac{5}{16} \times \frac{1}{2} \times 4$	$\frac{3}{16}$	6 to 7	$\frac{1}{2}$	.50
00-S	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{16}$	7 to 10	$\frac{11}{16}$	.50
0-S	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{1}{4}$	10 to 12	$\frac{13}{16}$	.75
1-S	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{5}{16}$	14 to 16	$\frac{11}{16}$	1.50
2-S	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{3}{8}$	16 to 18	$1\frac{1}{4}$	2.25
3-S	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{7}{16}$	18 to 20	$1\frac{13}{32}$	3.50
4-S	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{1}{2}$	24 to 36	$1\frac{21}{32}$	4.75
5-S	1 x 2 x 11	$\frac{5}{8}$	.....	2	7.50
6-S	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$2\frac{7}{16}$	12.00
7-S	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$2\frac{13}{16}$	19.00
750-S	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	.....	$3\frac{1}{8}$	26.00
800-S	$1\frac{3}{4} \times 3 \times 20$	$1\frac{1}{8}$	.....	$3\frac{3}{8}$	32.00

Offset



Left-Hand Offset



Right-Hand Offset

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

†Left-Hand Offset No.	†Right-Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square, Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
000-L	000-R	$\frac{5}{16} \times \frac{1}{2} \times 4$	$\frac{3}{16}$	6 to 7	$\frac{1}{2}$	.50
00-L	00-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{16}$	7 to 10	$\frac{11}{16}$	.50
0-L	0-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{1}{4}$	10 to 12	$\frac{13}{16}$	.75
1-L	1-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{5}{16}$	14 to 16	$\frac{11}{16}$	1.50
2-L	2-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{3}{8}$	16 to 18	$1\frac{1}{4}$	2.25
3-L	3-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{7}{16}$	18 to 20	$1\frac{13}{32}$	3.50
4-L	4-R	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{1}{2}$	24 to 36	$1\frac{21}{32}$	4.75
5-L	5-R	1 x 2 x 11	$\frac{5}{8}$	.....	2	7.50
6-L	6-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$2\frac{7}{16}$	12.00
7-L	7-R	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$2\frac{13}{16}$	19.00
750-L	750-R	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	.....	$3\frac{1}{8}$	26.00
800-L	800-R	$1\frac{3}{4} \times 3 \times 20$	$1\frac{1}{8}$	.....	$3\frac{3}{8}$	32.00

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. †Right-Hand Tools offset to the left.

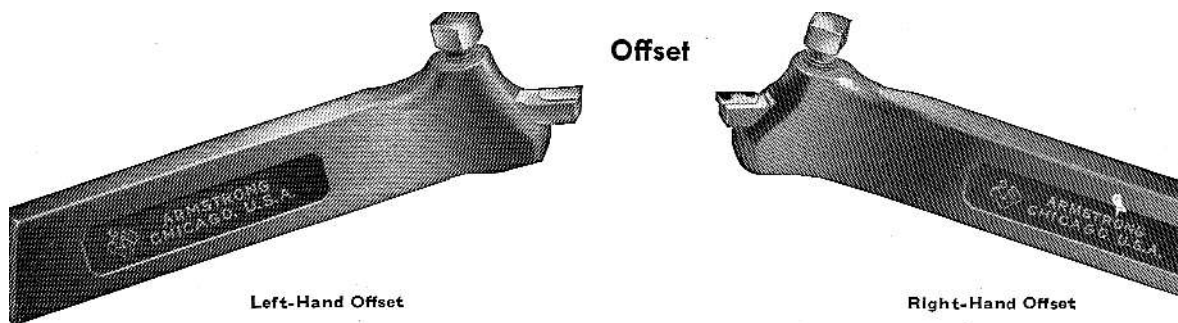
For best results, use ARMSTRONG High Speed Tool Bits—see page 41



ARMSTRONG CARBIDE TOOL HOLDERS

For Carbide Tipped Cutters

In ARMSTRONG Carbide Tool Holders, the cutter is held parallel to the shank of the holder which permits grinding the cutter so as to give maximum support to the cutting edge. This feature, together with the great rigidity of ARMSTRONG Tool Holders, is recognized by Carbide Engineers as a prerequisite to the successful application of Carbide Cutters. In addition to its primary use with Carbide-Tipped Cutters, this Tool Holder is widely used as a planer and shaper tool.



Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened. The set screws are made of treated alloy steel with hardened point. Furnished with hole broached for either square or heavy duty cutters.

Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

For Square Cutters

Straight Shank No.	†Left-Hand Offset No.	‡Right-Hand Offset No.	Size of Holder Inches	Size of Cutter Square Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight Lb.
T-0-S	T-0-L	T-0-R	$\frac{3}{8} \times \frac{15}{16} \times 6$	$\frac{1}{4}$	9 to 10	$\frac{11}{16}$	1.25
T-1-S	T-1-L	T-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	11 to 14	$\frac{7}{8}$	2.00
T-2-S	T-2-L	T-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8}$	14 to 16	1	3.25
T-3-S	T-3-L	T-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16}$	16	$1\frac{1}{8}$	5.00
T-4-S	T-4-L	T-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2}$	18	$1\frac{1}{4}$	7.00
T-5-S	T-5-L	T-5-R	1 x $2\frac{1}{8}$ x 12	$\frac{5}{8}$	20 to 24	$1\frac{3}{8}$	10.50
T-6-S	T-6-L	T-6-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$1\frac{1}{2}$	11.38
T-7-S	T-7-L	T-7-R	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$1\frac{3}{4}$	19.50
T-750-S	T-750-L	T-750-R	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	.....	$1\frac{7}{8}$	25.88

For Heavy Duty Cutters

Straight Shank No.	†Left-Hand Offset No.	‡Right-Hand Offset No.	Size of Holder Inches	Size of Cutter Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight Lb.
FT-0-S	FT-0-L	FT-0-R	$\frac{3}{8} \times \frac{15}{16} \times 6$	$\frac{1}{4} \times \frac{3}{8}$	9 to 10	$\frac{11}{16}$	1.25
FT-1-S	FT-1-L	FT-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16} \times \frac{1}{16}$	11 to 14	$\frac{7}{8}$	2.00
FT-2-S	FT-2-L	FT-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8} \times \frac{1}{2}$	14 to 16	1	3.25
FT-3-S	FT-3-L	FT-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16} \times \frac{9}{16}$	16	$1\frac{1}{8}$	5.00
FT-4-S	FT-4-L	FT-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2} \times \frac{3}{4}$	18	$1\frac{1}{4}$	7.00
FT-5-S	FT-5-L	FT-5-R	1 x $2\frac{1}{8}$ x 12	$\frac{5}{8} \times \frac{1}{8}$	20 to 24	$1\frac{3}{8}$	10.50

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. ‡Right-Hand Tools offset to the left.

For best results use ARMSTRONG Carbide Tipped Cutters—see pages 44 and 45

ARMSTRONG "C-A" TOOL HOLDERS

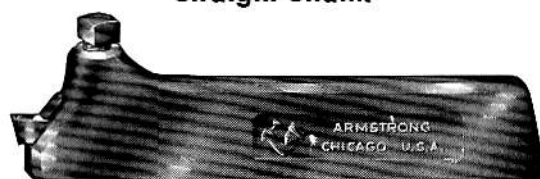
For Cast Alloy Tool Bits

In ARMSTRONG "C-A" Tool Holders the tool bit is held parallel to the shank of the holder which permits grinding to the correct rake and clearance and affords maximum support to the cutting edge.

The set screw pressure is distributed over a large area by means of a heavy tool steel gib movably set between tool bit and screw point. This feature is combined with the usual ARMSTRONG qualities of great strength and compactness.

Each tool drop forged from a special steel, accurately machined, heat treated and hardened. The set screws are made of treated alloy steel with hardened point.

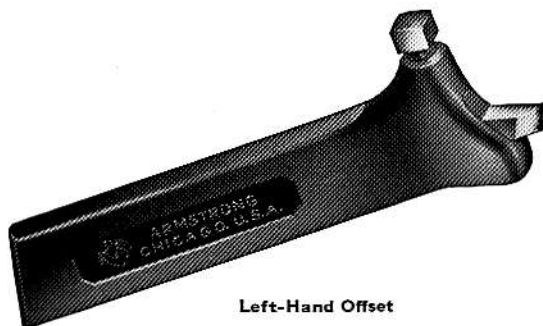
Straight Shank



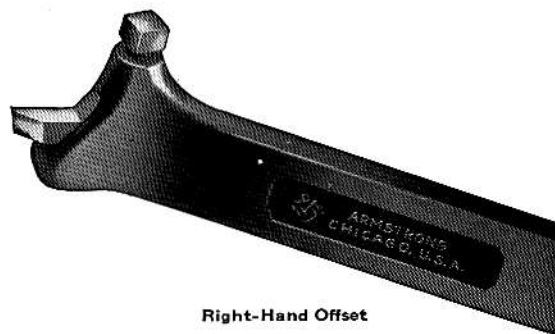
Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

No:	Size of Holder Inches	Size of Tool Bit Square, Inches	Length of Tool Bit Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
XX-0-S	$\frac{3}{8} \times \frac{15}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	$2\frac{1}{8}$	9 to 10	$\frac{11}{16}$	1.25
XX-1-S	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	$2\frac{1}{2}$	11 to 14	$\frac{7}{8}$	1.75
XX-2-S	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	3	14 to 16	1	3.00
XX-3-S	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	$3\frac{1}{2}$	16	$1\frac{1}{8}$	4.50
XX-4-S	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	4	18	$1\frac{1}{4}$	6.50
XX-5-S	$1 \times 2\frac{1}{8} \times 11\frac{3}{4}$	$\frac{5}{8}$	$4\frac{1}{2}$	20 to 24	$1\frac{3}{8}$	10.00

Offset



Left-Hand Offset



Right-Hand Offset

Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

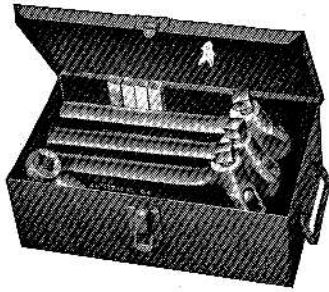
†Left-Hand Offset No.	†Right-Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square, Inches	Length of Tool Bit Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
XX-0-L	XX-0-R	$\frac{3}{8} \times \frac{15}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	$2\frac{1}{8}$	9 to 10	$\frac{11}{16}$	1.25
XX-1-L	XX-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	$2\frac{1}{2}$	11 to 14	$\frac{7}{8}$	1.75
XX-2-L	XX-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	3	14 to 16	1	3.00
XX-3-L	XX-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	$3\frac{1}{2}$	16	$1\frac{1}{8}$	4.50
XX-4-L	XX-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	4	18	$1\frac{1}{4}$	6.50
XX-5-L	XX-5-R	$1 \times 2\frac{1}{8} \times 11\frac{3}{4}$	$\frac{5}{8}$	$4\frac{1}{2}$	20 to 24	$1\frac{3}{8}$	10.00

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. †Right-Hand Tools offset to the left.

For best results, use ARMALLOY Tool Bits—see page 46

ARMSTRONG "C-A" TOOL SETS



ARMSTRONG "C-A" Sets are available in five sizes. Each set consists of one straight shank, one right-hand and one left-hand offset ARMSTRONG "C-A" Tool Holder, and four ARMALLOY tool bits.

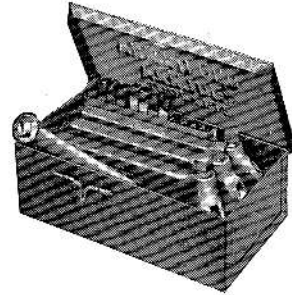
Set is furnished with one wrench and steel case.

No.	Size of Holder Inches	Size of Tool Bit Square, In.	Approx. Weight Lb.
0466	$\frac{3}{8} \times \frac{1}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	3.5
0467	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	6.5
0468	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	9.0
0469	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	13.5
0470	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	20.5

See page 4 for "C-A" Tool Holders, especially designed for use with ARMALLOY Tool Bits.

ARMSTRONG ARMIDE TOOL SETS

ARMSTRONG ARMIDE Tool Sets permit the advantages of carbide cutting tools for many operations without the excessive cost of special tools.



Each set consists of one straight shank, one right hand and one left-hand offset ARMSTRONG Carbide Tool Holder; and eight ARMIDE Cutters—one each right-hand, left-hand, square nose and 80 degree ARMIDE grade 78 for cutting steel, and one each right-hand, left-hand, square nose and 80 degree ARMIDE grade 883 for cutting all other materials.

Each set is furnished complete with one wrench and steel case.

See page 3 for Carbide Tool Holders, especially designed for use with ARMIDE Cutters.

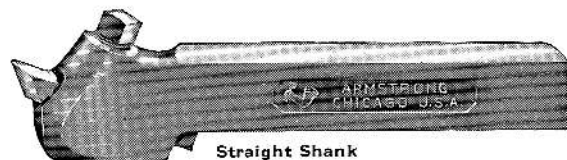
No.	Size of Holder Inches	Size of Cutter Square, In.	Approx. Weight Lb.
M-0A	$\frac{3}{8} \times \frac{1}{16} \times 6$	$\frac{1}{4}$	3.5
M-1A	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	6.5
M-2A	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8}$	9.0
M-3A	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16}$	13.5
M-4A	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2}$	20.5

ARMSTRONG DROP-HEAD TOOL HOLDERS

ARMSTRONG Drop-Head Turning Tool Holders are designed especially for use on lathes of British and European make having a clamp tool rest, and American lathes of similar design with high slide rest or low centers. Head and screw are extra heavy; "goose-neck" shape of holder makes it an excellent shaper and planer tool.

Drop forged from special steel, accurately machined, heat treated and hardened. Set screws are made of treated alloy steel with hardened point.

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.



Straight Shank No.	*Left- Hand Offset No.	†Right- Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square Inches	Nom. Ht. from Bottom of Shank to Tool Bit Point, Inches	Approximate Weight Lb.
100-S	100-L	100-R	$\frac{1}{2} \times \frac{3}{8} \times 6$	$\frac{3}{16}$	$\frac{9}{16}$	.75
101-S	101-L	101-R	$\frac{5}{8} \times \frac{3}{4} \times 7\frac{1}{2}$	$\frac{1}{4}$	$1\frac{1}{16}$	1.50
201-S	201-L	201-R	$\frac{3}{4} \times \frac{7}{8} \times 8\frac{1}{2}$	$\frac{5}{16}$	$1\frac{3}{16}$	2.00
102-S	102-L	102-R	$\frac{7}{8} \times 1 \times 9\frac{1}{2}$	$\frac{3}{8}$	$1\frac{5}{16}$	3.00
301-S	301-L	301-R	$1 \times 1\frac{1}{8} \times 10\frac{1}{2}$	$\frac{7}{16}$	$1\frac{11}{16}$	4.25
103-S	103-L	103-R	$1\frac{1}{8} \times 1\frac{1}{4} \times 11\frac{1}{2}$	$\frac{1}{2}$	$1\frac{3}{16}$	6.00
104-S	104-L	104-R	$1\frac{3}{8} \times 1\frac{1}{2} \times 13\frac{1}{2}$	$\frac{5}{8}$	$1\frac{3}{8}$	10.00
105-S	105-L	105-R	$1\frac{5}{8} \times 1\frac{3}{4} \times 15\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	16.00
106-S	106-L	106-R	$1\frac{7}{8} \times 2 \times 17\frac{1}{2}$	$\frac{7}{8}$	$1\frac{3}{4}$	23.00
107-S	107-L	107-R	$2\frac{1}{8} \times 2\frac{1}{4} \times 19\frac{1}{2}$	1	2	31.00

*Left-Hand Tools offset to the right. †Right-Hand Tools offset to the left.

For best results, use ARMSTRONG High Speed Tool Bits—see page 41.



ARMSTRONG CARBIDE INSERT TOOL HOLDERS

These tool holders are furnished in two styles:

Style T, for holding triangular inserts with cutting edge parallel to the shank.

Style S, for holding square inserts with cutting edge at 15° angle to the shank.

Inserts are held in negative rake tool holders at 5° negative rake angle, and are turned over so that cutting edges on both sides may be used. Inserts are held in positive rake tool holders at 5° positive rake angle, cannot be turned over.

The shanks of these tool holders are made of selected alloy steel, carefully heat treated, accurately machined and finished in a natural steel finish. Tool steel seats are ground and hardened to provide a flat base for inserts and to minimize the possibility of damage to inserts as they are clamped in position. A relief groove ground into the seat on negative rake tool holders provides clearance when a dulled insert with "built-up" edges is turned over.

FOR USE IN CONVENTIONAL TOOL POSTS

Shops that heretofore have used little or no carbide, due to a lack of carbide grinding equipment, can now adopt the "throw-away" carbide insert method, with ARMSTRONG Carbide Insert Tool Holders, with shanks specifically designed for use in standard lathe tool posts.

With carbide inserts, no grinding is necessary.

Shops that have been using single point carbide tool bits can now realize a saving in carbide expense through the application of the "carbide insert" principle—the throw-away insert with multiple cutting edges used in standard ARMSTRONG Carbide Insert Tool Holders.

Furnished in two styles, as described above. Both styles available with positive or negative rake angles, "Left Hand" or "Right Hand," in four shank sizes. Each tool is boxed separately and includes wrench but neither insert nor chip breaker.



ARMSTRONG CARBIDE INSERT TOOL HOLDERS

FOR USE IN OPEN SIDE TOOL POSTS

Two styles as described on page 6.

Both styles available with positive or negative rake angles, "left hand" or "right hand," three shank sizes.

Each tool is boxed separately and includes wrench but neither insert nor chip breaker.

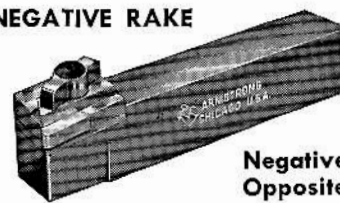
POSITIVE RAKE



**Positive Rake—Style TR
Opposite Hand, Style TL**

Size of Holder, Inches Wdth. Ht. Lgth.	Style T, Triangular					
	No.		Holds Insert Size Dimen., Inches			Holds Chip Breaker No.
	Style TR Right-Hand	Style TL Left-Hand	I.C.	T	R	
$\frac{3}{4} \times \frac{3}{4} \times 4\frac{1}{2}$	TR12P	TL12P	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{1}{32}$	CTB12
1 x1 x6	TR16P	TL16P	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{3}{64}$	CTB16
1 x1 $\frac{1}{4}$ x6	TR85P	TL85P	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{3}{64}$	CTB16

NEGATIVE RAKE



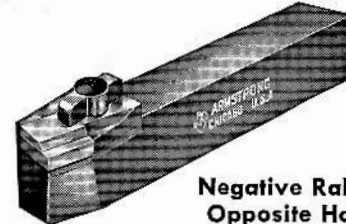
**Negative Rake—Style TR
Opposite Hand, Style TL**

Size of Holder, Inches Wdth. Ht. Lgth.	Style T, Triangular					
	No.		Holds Insert Size Dimen., Inches			Holds Chip Breaker No.
	Style TR Right-Hand	Style TL Left-Hand	I.C.	T	R	
$\frac{3}{4} \times \frac{3}{4} \times 4\frac{1}{2}$	TR12	TL12	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{3}{64}$	CTB12
1 x1 x6	TR16	TL16	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{16}$	CTB16
1 x1 $\frac{1}{4}$ x6	TR85	TL85	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{16}$	CTB16



**Positive Rake—Style SR
Opposite Hand, Style SL**

Size of Holder, Inches Wdth. Ht. Lgth.	Style S, Square					
	No.		Holds Insert Size Dimen., Inches			Holds Chip Breaker No.
	Style SR Right-Hand	Style SL Left-Hand	A	T	R	
$\frac{3}{4} \times \frac{3}{4} \times 4\frac{1}{2}$	SR12P	SL12P	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{32}$	CSQ16
1 x1 x6	SR16P	SL16P	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{16}$	CSQ24
1 x1 $\frac{1}{4}$ x6	SR85P	SL85P	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{16}$	CSQ24



**Negative Rake—Style SR
Opposite Hand, Style SL**

Size of Holder, Inches Wdth. Ht. Lgth.	Style S, Square					
	No.		Holds Insert Size Dimen., Inches			Holds Chip Breaker No.
	Style SR Right-Hand	Style SL Left-Hand	A	T	R	
$\frac{3}{4} \times \frac{3}{4} \times 4\frac{1}{2}$	SR12	SL12	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{32}$	CSQ16
1 x1 x6	SR16	SL16	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{16}$	CSQ24
1 x1 $\frac{1}{4}$ x6	SR85	SL85	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{16}$	CSQ24



ARMSTRONG CUTTING-OFF TOOLS

The ARMSTRONG system is especially efficient and economical when applied to cutting-off in a lathe as the blade is adjustable to any desired clearance and the greatest support possible is obtainable under all conditions.

Straight Shank



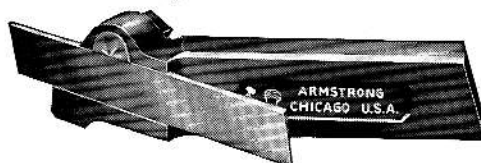
Blades are beveled on both sides, held at an angle, giving side clearance and top rake needed to obtain a clean, smooth cut.

Drop forged from special steel, accurately machined, heat treated, hardened. Each tool boxed separately; includes wrench and one ARMSTRONG High Speed cut-off blade.

Left-Hand Offset



Right-Hand Offset

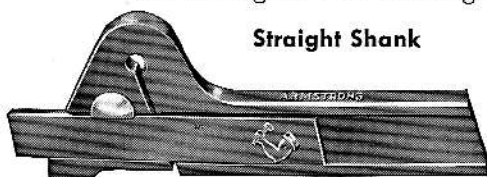


Straight Shank		Offset			Size of Cut-Off Blade Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nom. Height from Bottom of Shank to Blade Point, In.	Approx. Weight Lb.
No.	Size of Holder Inches	Left-Hand No.	Right-Hand No.	Size of Holder Inches				
19	$\frac{3}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	29-L	29-R	$\frac{3}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{32} \times \frac{1}{2}$	6 to 8	$\frac{5}{8}$	.63
20	$\frac{3}{8} \times \frac{7}{8} \times 5$	30-L	30-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{3}{32} \times \frac{5}{8}$	9 to 10	$\frac{3}{4}$	.75
21	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	31-L	31-R	$\frac{1}{2} \times 1\frac{1}{8} \times 5\frac{7}{8}$	$\frac{1}{8} \times \frac{3}{4}$	11 to 14	$\frac{7}{8}$	1.25
22	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	32-L	32-R	$\frac{5}{8} \times 1\frac{3}{8} \times 6\frac{7}{8}$	$\frac{1}{8} \times \frac{7}{8}$	14 to 16	$1\frac{1}{16}$	2.25
23	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	33-L	33-R	$\frac{3}{4} \times 1\frac{5}{8} \times 7\frac{7}{8}$	$\frac{3}{16} \times 1$	16	$1\frac{1}{4}$	3.25
24	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	34-L	34-R	$\frac{7}{8} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{3}{16} \times 1\frac{1}{8}$	18	$1\frac{1}{2}$	4.50
25	1 x 2 x 10	35-L	35-R	1 x 2 x 9 $\frac{7}{8}$	$\frac{1}{4} \times 1\frac{1}{4}$	20 to 24	$1\frac{1}{16}$	6.50
26	$1\frac{1}{4} \times 2\frac{1}{4} \times 11$	36-L	36-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 10\frac{7}{8}$	$\frac{1}{4} \times 1\frac{3}{8}$	30 to 36	$1\frac{3}{16}$	9.00

ARMSTRONG SPRING CUTTING-OFF TOOLS

Cutting off in a lathe, regarded as the hardest of lathe work, has been made comparatively simple by this tool. Its "goose neck" form gives the blade a resiliency that takes up any chatter and keeps the work from climbing up on tool—the cause of practically all cutting-off tool breakage. Cut-off blade adjustable to any desired clearance.

Straight Shank



Each tool is drop forged from special steel, accurately machined, heat treated, hardened, and boxed separately; includes wrench and one ARMSTRONG High Speed cut-off blade.

Blades are beveled on both sides, held at an angle, giving side clearance and top rake to obtain a clean, smooth cut.

Left-Hand Offset



Right-Hand Offset



Straight Shank		Offset			Size of Cut-Off Blade Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nom. Height from Bottom of Shank to Blade Point, In.	Approx. Weight Lb.
No.	Size of Holder Inches	Left-Hand No.	Right-Hand No.	Size of Holder Inches				
S-20	$\frac{3}{8} \times \frac{1}{8} \times 5\frac{1}{2}$	S-30-L	S-30-R	$\frac{3}{8} \times \frac{1}{8} \times 5\frac{1}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9 to 10	$\frac{3}{4}$	.75
S-21	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{3}{8}$	S-31-L	S-31-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{1}{8} \times \frac{3}{4}$	11 to 14	$1\frac{1}{16}$	1.50
S-22	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	S-32-L	S-32-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{3}{4}$	$\frac{1}{8} \times \frac{7}{8}$	14 to 16	$1\frac{3}{16}$	2.25
S-23	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{1}{8}$	S-33-L	S-33-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{3}{8}$	$\frac{3}{16} \times 1$	16	$1\frac{1}{16}$	3.50

*As there is a wide variation in the proportion of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

For best results, use ARMSTRONG High Speed Cut-Off Blades—see page 42

ARMSTRONG SIDE TOOLS

The ARMSTRONG Side Tool design is typical of the entire ARMSTRONG system of Tool Holders, embodying convenience, simplicity and strength. Drop forged from a special steel, accurately machined, heat treated and hardened.

Offset

Left-Hand Offset



Right-Hand Offset



Each tool boxed separately; includes wrench and one ARMSTRONG High Speed side tool blade.

Left-Hand Offset No.	Right-Hand Offset No.	Size of Holder Inches	Size of Side Tool Blade Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Blade Point Inches	Approx. Weight Lb.
69-L	69-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{3}{8}$	$\frac{1}{8} \times \frac{1}{2}$	6 to 8	$\frac{9}{16}$	.63
70-L	70-R	$\frac{3}{8} \times \frac{7}{8} \times 4\frac{1}{4}$	$\frac{5}{32} \times \frac{5}{8}$	9 to 10	$\frac{11}{16}$	.75
71-L	71-R	$\frac{1}{2} \times 1\frac{1}{8} \times 5\frac{7}{8}$	$\frac{3}{16} \times \frac{3}{4}$	11 to 14	$\frac{15}{16}$	1.50
72-L	72-R	$\frac{5}{8} \times 1\frac{3}{8} \times 6\frac{7}{8}$	$\frac{1}{4} \times \frac{7}{8}$	14 to 16	$1\frac{1}{8}$	2.25
73-L	73-R	$\frac{3}{4} \times 1\frac{5}{8} \times 7\frac{7}{8}$	$\frac{5}{16} \times 1$	16	$1\frac{1}{4}$	3.50
74-L	74-R	$\frac{7}{8} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{3}{8} \times 1\frac{1}{4}$	18	$1\frac{3}{8}$	6.00
75-L	75-R	1 x 2 x 9 $\frac{7}{8}$	$\frac{7}{16} \times 1\frac{3}{8}$	20 to 24	$1\frac{1}{2}$	8.50
76-L	76-R	1 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x 10 $\frac{7}{8}$	$\frac{1}{2} \times 1\frac{1}{2}$	30 to 36	$1\frac{3}{4}$	12.75

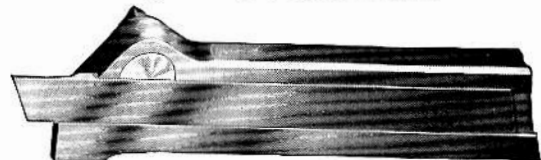
Straight Shank

In addition to their primary use on lathes, ARMSTRONG Straight Shank Side Tools are well adapted for Planer and Shaper work on which they will be found exceptionally convenient and efficient. Drop forged from a special steel, accurately machined, heat treated and hardened.

Left-Hand Straight Shank



Right-Hand Straight Shank



Each tool boxed separately; includes wrench and one ARMSTRONG High Speed side tool blade.

Left-Hand Straight Shank No.	Right-Hand Straight Shank No.	Size of Holder Inches	Size of Side Tool Blade Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Blade Point Inches	Approx. Weight Lb.
79-L	79-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{1}{8} \times \frac{1}{2}$	6 to 8	$\frac{9}{16}$	.63
80-L	80-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{5}{32} \times \frac{5}{8}$	9 to 10	$\frac{11}{16}$	.75
81-L	81-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{3}{16} \times \frac{3}{4}$	11 to 14	$\frac{15}{16}$	1.25
82-L	82-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{1}{4} \times \frac{7}{8}$	14 to 16	$1\frac{1}{8}$	1.75
83-L	83-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{5}{16} \times 1$	16	$1\frac{1}{4}$	3.25
84-L	84-R	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{3}{8} \times 1\frac{1}{4}$	18	$1\frac{3}{8}$	5.00
85-L	85-R	1 x 2 x 11	$\frac{7}{16} \times 1\frac{3}{8}$	20 to 24	$1\frac{1}{2}$	7.50
86-L	86-R	1 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x 13	$\frac{1}{2} \times 1\frac{1}{2}$	30 to 36	$1\frac{3}{4}$	11.00

*As there is a wide variation in the proportion of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

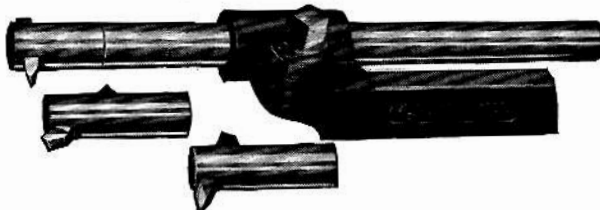
For best results, use ARMSTRONG High Speed Side Tool Blades—see page 42

ARMSTRONG BORING TOOLS

The convenience and many practical advantages of the ARMSTRONG system of boring tools are known and appreciated in almost every modern machine shop.

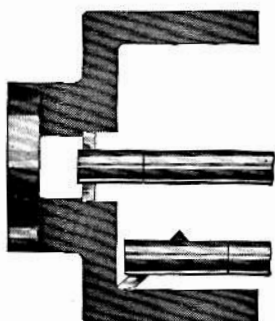
The ARMSTRONG Boring Tool is equal in practical efficiency to a whole set of forged boring and inside threading tools.

A half turn of one screw clamps or releases the bar which can be extended from the shank or holder to any desired length giving the greatest degree of stiffness possible on every job.

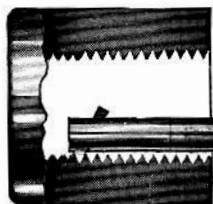


End caps used with this tool lock the cutters rigidly under a tool steel automatic set screw which cannot loosen while tool is cutting, yet instantly releases tool bit for removal.

End caps are interchangeable without removing bar. Furnished in three styles: 90° for boring with single or double head cutter; 45° for boring and facing; 30° for internal threading.



The illustration at the left shows 90° end cap with double end tool bit roughing out cored hole, and also 45° end cap cutter boring and facing end.



Showing 30° end cap cutting internal thread.

The holder of each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

Each tool is boxed separately and includes holder and bar, 90°, 45° and 30° end caps, three High Speed tool bits and double head wrench.

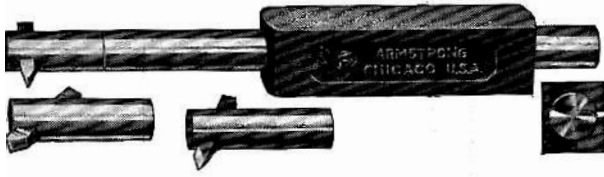
For boring bar bushings to bush small size bars to larger holders, see boring tool bushings, described on page 11.

No:	Size of Holder Inches	Size Tool Bit Square, Inches	Diameter of Bar Inches	For Lathes, *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Center Inches	Approximate Weight Lb.
7	$\frac{5}{16} \times \frac{3}{4} \times \frac{4}{8}$	$\frac{3}{16}$	$\frac{1}{2}$	6 to 8	$\frac{3}{4}$	1.50
8	$\frac{3}{8} \times \frac{7}{8} \times \frac{5}{8}$	$\frac{3}{16}$	$\frac{9}{16}$	9 to 10	$\frac{7}{8}$	1.75
9	$\frac{1}{2} \times 1\frac{1}{8} \times \frac{6}{8}$	$\frac{1}{4}$	$\frac{3}{4}$	11 to 14	$1\frac{1}{8}$	3.75
10	$\frac{5}{8} \times 1\frac{3}{8} \times \frac{7}{16}$	$\frac{5}{16}$	$1\frac{5}{16}$	14 to 16	$1\frac{1}{4}$	6.50
11	$\frac{3}{4} \times 1\frac{5}{8} \times \frac{8}{16}$	$\frac{3}{8}$	$1\frac{1}{8}$	16	$1\frac{1}{2}$	11.00
12	$\frac{7}{8} \times 1\frac{3}{4} \times \frac{9}{4}$	$\frac{7}{16}$	$1\frac{5}{16}$	18	$1\frac{3}{8}$	17.00
13	1 x 2 x $1\frac{1}{16}$	$\frac{1}{2}$	$1\frac{1}{2}$	20 to 24	$1\frac{3}{4}$	25.00

*As there is a wide variation in the proportions of lathes of different manufacturers, it is only possible to give approximate size of swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

For best results, use ARMSTRONG High Speed Tool Bits—see page 43

ARMSTRONG BORING TOOLS



Especially designed for use on lathes of British and European make having clamp tool rest and American lathes of similar design.

Each tool is boxed separately; includes holder and bar, 90°, 45° and 30° end caps, three ARMSTRONG High Speed tool bits, double head wrench.

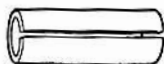
For boring bar bushings to bush small size bars to larger holders, see boring tool bushings described below.

No.	Size of Holder Inches	Size of Tool Bit Inches	Diameter of Bar Inches	Nominal Height from Bottom of Holder to Center Inches	Approx. Weight Lb.
108	$\frac{3}{4} \times \frac{7}{8} \times 3\frac{1}{4}$	$\frac{3}{16}$	$\frac{9}{16}$	$\frac{7}{16}$	1.5
109	1 x $1\frac{1}{8} \times 4\frac{9}{32}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{9}{16}$	3.0
110	$1\frac{1}{4} \times 1\frac{3}{8} \times 5\frac{9}{32}$	$\frac{5}{16}$	$1\frac{1}{16}$	$1\frac{1}{16}$	5.5
111	$1\frac{1}{2} \times 1\frac{5}{8} \times 6\frac{9}{32}$	$\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{3}{16}$	9.0
112	$1\frac{3}{4} \times 1\frac{7}{8} \times 7\frac{9}{32}$	$\frac{7}{16}$	$1\frac{3}{16}$	$1\frac{5}{16}$	15.0
113	2 x $2\frac{1}{8} \times 8\frac{1}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{16}$	20.0
114	$2\frac{1}{4} \times 2\frac{3}{8} \times 9\frac{3}{16}$	$\frac{5}{8}$	$1\frac{13}{16}$	$1\frac{3}{16}$	31.0

When ordering, be sure to specify catalog number.

For Boring Bar Diam. Inches	90° End Cap		45° End Cap		30° End Cap		Wrench	
	Part No.	Approx. Weight Lb.	Part No.	Approx. Weight Lb.	Part No.	Approx. Weight Lb.	Part No.	Approx. Weight Lb.
$\frac{1}{2}$	8001	.03	8021	.06	8041	.06	8081	.19
$\frac{9}{16}$	8002	.05	8022	.13	8042	.13	8082	.25
$\frac{3}{4}$	8003	.13	8023	.25	8043	.25	8083	.44
$\frac{15}{16}$	8004	.19	8024	.50	8044	.44	8084	.63
$1\frac{1}{8}$	8005	.31	8025	.63	8045	.56	8085	1.06
$1\frac{5}{16}$	8006	.50	8026	1.06	8046	1.00	8086	1.50
$1\frac{1}{2}$	8007	.75	8027	1.44	8047	1.25	8087	2.06
$1\frac{3}{16}$	8008	1.31	8028	2.50	8048	2.13	8088	1.94

BORING TOOL BUSHINGS



Boring Tool Bushings are used to bush small size bars to larger holders. When ordering, please specify number. Bushings listed for tool Nos. 8, 9, 10 can also be used in tool Nos. 108, 109, 110, etc.

Bushing No.	For Boring Bar Diameter Inches	Fits Tool Shank No.	Approx. Weight Lb.	Bushing No.	For Boring Bar Diameter Inches	Fits Tool Shank No.	Approx. Weight Lb.
8178	$\frac{1}{2}$	8	.02	8191	$\frac{3}{4}$	12	.44
8179	$\frac{1}{2}$	9	.02	8193	$\frac{15}{16}$	11	.25
8180	$\frac{1}{2}$	10	.02	8194	$\frac{15}{16}$	12	.25
8184	$\frac{9}{16}$	9	.13	8195	$\frac{15}{16}$	13	.25
8185	$\frac{9}{16}$	10	.13	8196	$1\frac{1}{8}$	12	.31
8186	$\frac{9}{16}$	11	.13	8197	$1\frac{1}{8}$	13	.31
8189	$\frac{3}{4}$	10	.44	8198	$1\frac{5}{16}$	13	.50
8190	$\frac{3}{4}$	11	.44	....	...	..	...



ARMSTRONG BORING TOOL HOLDER

For Light Boring, Threading and Turning

This tool will be found very handy in the tool room for boring work of small internal diameter, threading, brass turning, etc. The holder is reversible, and can be used for turning either right or left hand, since the floating tool steel gib allows the yoke to clear the end of the holder.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened. Each tool is boxed separately and includes necessary wrench.

This boring tool holder is furnished as follows:

Boring Tool holder only, without boring bars or tool bit.

With two forged boring bars and one high speed square tool bit.

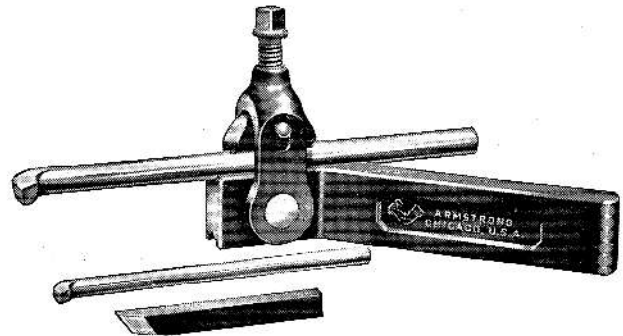
With two clamp boring bars and four high speed round tool bits.

Boring Tool Holder Only, Without Boring Bars or Tool Bits

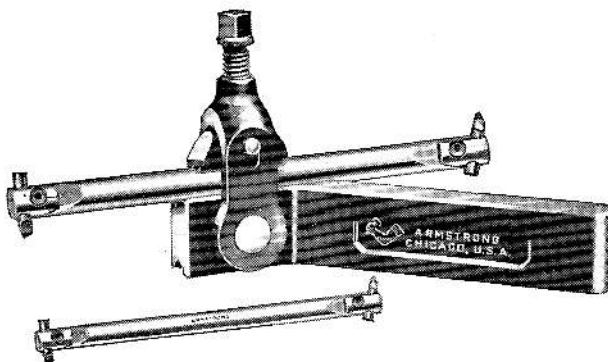


No.	Size of Holder Inches	WILL ACCOMMODATE		Approx. Weight Lb.
		Boring Bars, Diameter Inches	Square Bits, Size Inches	
15	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{1}{4}$	.88
16	$\frac{1}{2} \times 1$	$\frac{3}{16}$ & $\frac{3}{8}$	$\frac{5}{16}$	1.56
17	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	2.31
18	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{5}{16}$ & $\frac{1}{2}$	$\frac{1}{2}$	3.61

Boring Tool Holder with Two Forged Boring Bars and One High Speed Square Tool Bit



No.	Old No.	Size of Holder Inches	Forged Bars, Diameter Inches	Square Bits, Size Inches	Approx. Weight Lb.
15-F	15	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{1}{4}$	1.00
16-F	16	$\frac{1}{2} \times 1$	$\frac{3}{16}$ & $\frac{3}{8}$	$\frac{5}{16}$	1.75
17-F	17	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	2.75
18-F	18	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{5}{16}$ & $\frac{1}{2}$	$\frac{1}{2}$	4.50

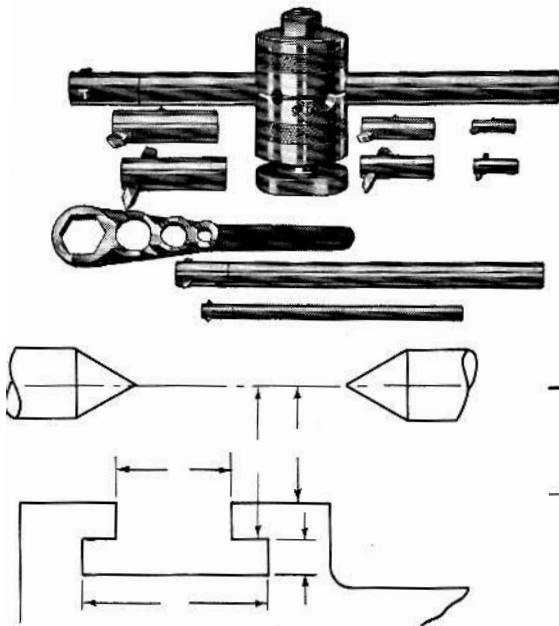


Boring Tool Holder with Two Clamp Boring Bars and Four High Speed Round Tool Bits

No.	Size of Holder Inches	Cutter Clamp Bars, Diameter Inches	Round Tool Bit, Diameter Inches	Approx. Weight Lb.
15-C	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{3}{32}$	1.02
16-C	$\frac{1}{2} \times 1$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{1}{8}$	1.89
17-C	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{3}{16}$	2.61
18-C	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{1}{4}$	3.91

For best results, use ARMSTRONG High Speed Tool Bits—see pages 15 & 41

ARMSTRONG 3-BAR BORING TOOL



Fitting: An extra charge will be made for fitting holders to the lathe on which the tool is to be used. Dimensions, as shown in the above drawing, should be furnished when ordering a fitted boring tool.

A slight turn of one nut allows bars to be changed as needed instantly, thus allowing the operator to use the stiffest bar possible for each job with the result that speeds and feeds can be increased and time saved.

Each set is boxed separately and includes holder, three ARMSTRONG Boring Bars with 90°, 45° and 30° end caps, nine ARMSTRONG High Speed tool bits and combination wrench.

No. 00-B is furnished with one solid type boring bar, two boring bars with 90°, 45° and 30° end caps, six high speed tool bits and a wrench.

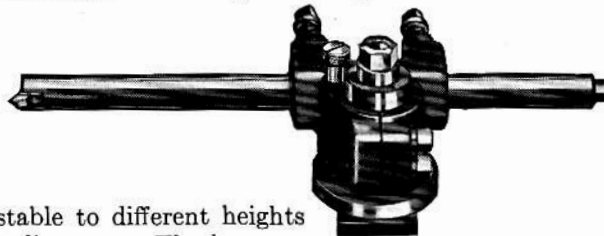
No.	Diameter of Bars Inches	Length of Bars Inches	Size Tool Bits Square, Inches	For Lathes *Approx. Swing Inches	Nom. Ht. from Bottom to Ctr. of Holder Inches	Diam. of Holder	Approx. Wt. Lb.
00-B	* $\frac{3}{8}, \frac{1}{2}, \frac{3}{4}$	7, 8, 11	* $\frac{3}{16}, \frac{1}{4}$	8 to 10	$1\frac{5}{16}$	2	8
0-B	$\frac{1}{2}, \frac{3}{16}, \frac{3}{4}$	8, 9, 11	$\frac{3}{16}, \frac{3}{16}, \frac{1}{4}$	11 to 14	$1\frac{7}{8}$	$2\frac{1}{2}$	12
1-B	$\frac{1}{2}, \frac{3}{4}, 1\frac{1}{8}$	8, 11, 16	$\frac{3}{16}, \frac{1}{4}, \frac{3}{8}$	12 to 16	$2\frac{1}{8}$	$3\frac{1}{8}$	18
2-B	$\frac{9}{16}, \frac{15}{16}, 1\frac{5}{16}$	9, 13, 18	$\frac{3}{16}, \frac{5}{16}, \frac{7}{16}$	16 to 18	$2\frac{1}{2}$	$3\frac{1}{2}$	27
3-B	$\frac{3}{4}, 1\frac{1}{8}, 1\frac{1}{2}$	11, 16, 23	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}$	20 to 22	$2\frac{7}{8}$	$4\frac{1}{4}$	50
4-B	$1\frac{5}{16}, 1\frac{15}{16}, 1\frac{13}{16}$	13, 18, 28	$\frac{5}{16}, \frac{7}{16}, \frac{5}{8}$	24 to 32	$3\frac{1}{4}$	$4\frac{7}{8}$	75

Note: Bolt head and bottom part of holder are made of ample size to allow for fitting which is necessary on account of the great variation in height of centers above slide rest and difference in sizes of T slots.

* $\frac{3}{8}$ " bar is solid.

ARMSTRONG ADJUSTABLE BORING TOOL

This tool combines convenience, adjustability and rigidity to a remarkable degree and is well adapted to a very wide range of work.



The holder is easily adjustable to different heights and will hold bars of various diameters. The bars are made from high carbon steel seamless tubing of heavy gauge and are extremely stiff.

The tool bit can be adjusted and solidly fixed at various angles for boring, facing or turning.

Each tool is boxed separately; includes holder, one bar, two ARMSTRONG High Speed tool bits, wrench.

No.	Capacity of Holder Diameter Bars Inches	Size Bar Furnished Inches	Size Tool Bit Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
212	$\frac{3}{4}$ to $1\frac{5}{16}$	$1\frac{5}{16}$ x 21	$\frac{3}{8}$	14 to 18	25
213	$\frac{3}{4}$ to $1\frac{1}{2}$	$1\frac{1}{2}$ x 24	$\frac{7}{16}$	16 to 20	38
214	$\frac{3}{4}$ to $1\frac{13}{16}$	$1\frac{13}{16}$ x 28	$\frac{1}{2}$	18 to 24	75
215	$\frac{3}{4}$ to $2\frac{1}{4}$	$2\frac{1}{4}$ x 36	$\frac{5}{8}$	20 to 36	120

Note: Bolt head is made large enough to allow for fitting to T slots of various sizes.

Fitting: An extra charge will be made for fitting bolt head to special dimensions. Dimensions, as shown in the drawing under the illustration of 3-Bar Boring Tool (above), should be furnished when ordering a fitted tool.

ADJUSTABLE BORING BARS

Includes one bar of size specified, two ARMSTRONG High Speed tool bits and wrench.

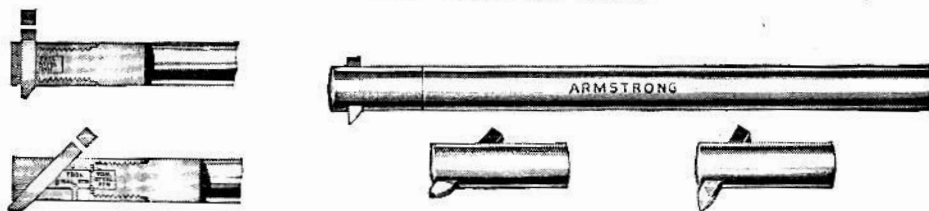
No.	SIZE OF BAR		Size Tool Bit Square, Inches	Approx. Weight Lb.
	Diameter Inches	Length Inches		
0521	$\frac{3}{4}$	14	$\frac{3}{16}$	1.75
0522	$1\frac{5}{16}$	16	$\frac{1}{4}$	3.25
0523	$1\frac{1}{8}$	18	$\frac{5}{16}$	5.00
0524	$1\frac{3}{16}$	21	$\frac{3}{8}$	7.50
0525	$1\frac{1}{2}$	24	$\frac{7}{16}$	11.00
0526	$1\frac{13}{16}$	28	$\frac{1}{2}$	19.00
0527	$2\frac{1}{4}$	36	$\frac{5}{8}$	38.00



ARMSTRONG BORING BARS

For Use in ARMSTRONG Boring Tools

END CAP PATTERN BARS



For boring, facing and internal threading, the ARMSTRONG End Cap Pattern Boring Bar is unexcelled. The end cap locks the tool bit rigidly under a tool steel automatic set screw which cannot loosen while the tool is cutting, yet instantly releases the tool bit for removal. The end caps are interchangeable without removing the bar from the holder.

Each ARMSTRONG Boring Bar is machined from a selected steel and is accurately broached.

Each bar is boxed separately and includes 90°, 45° and 30° end caps, three ARMSTRONG High Speed tool bits and double head wrench.

For boring bar bushings to bush small size bars to larger holders, see boring tool bushings described on page 11.

No.	DIMENSIONS OF BAR		Size Tool Bit Inches	Approximate Weight Lb.
	Diameter Inches	Length Inches		
07	$\frac{1}{2}$	8	$\frac{3}{16}$	.75
08	$\frac{9}{16}$	9	$\frac{3}{16}$	1.00
09	$\frac{3}{4}$	11	$\frac{1}{4}$	2.25
010	$\frac{15}{16}$	13	$\frac{5}{16}$	4.50
011	$1\frac{1}{8}$	16	$\frac{3}{8}$	7.00
012	$1\frac{5}{16}$	18	$\frac{7}{16}$	11.00
013	$1\frac{1}{2}$	23	$\frac{1}{2}$	15.00
014	$1\frac{13}{16}$	28	$\frac{5}{8}$	23.00

Note: These boring bars may be adapted to screw machines and turret lathes by using the plain turners described on page 22.

PLAIN BARS



The ARMSTRONG Plain Boring Bar has one end broached at 90° angle and the opposite end broached at 45° angle for square tool bits.

Each ARMSTRONG boring bar is machined from a selected steel and is accurately broached.

Each bar is boxed separately and includes two ARMSTRONG High Speed tool bits and hollow set screw wrench.

For boring bar bushings to bush small size bars to larger holders, see boring tool bushings described on page 11.

No.	DIMENSIONS OF BAR		Size Tool Bit Inches	Approximate Weight Lb.
	Diameter Inches	Length Inches		
07-X	$\frac{1}{2}$	8	$\frac{3}{16}$	.75
08-X	$\frac{9}{16}$	9	$\frac{3}{16}$	1.00
09-X	$\frac{3}{4}$	11	$\frac{1}{4}$	2.25
010-X	$\frac{15}{16}$	13	$\frac{5}{16}$	4.50
011-X	$1\frac{1}{8}$	16	$\frac{3}{8}$	7.00
012-X	$1\frac{5}{16}$	18	$\frac{7}{16}$	11.00
013-X	$1\frac{1}{2}$	23	$\frac{1}{2}$	15.00
014-X	$1\frac{13}{16}$	28	$\frac{5}{8}$	23.00

Note: These boring bars may be adapted to screw machines and turret lathes by using the plain turners described on page 22.

For best results, use ARMSTRONG High Speed Tool Bits—see page 43

For Use in ARMSTRONG Boring Tools

FORGED BORING BARS



These Boring Bars are forged from the best high speed steel, properly hardened, tempered and ground to shape ready for finish grinding.

Packed five of a size in a box.

No.....	8140	8141	8142	8143	8144	8145
Diameter.....inches	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Length.....inches	4	$4\frac{1}{2}$	5	6	7	8
Approximate Weight.....lb.	.02	.03	.06	.13	.25	.38

CLAMP BORING BARS



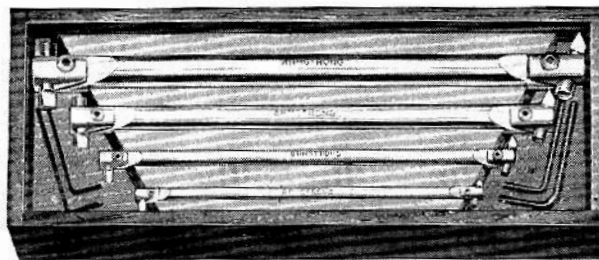
The ARMSTRONG Clamp Boring Bar is designed to hold tool bits at extreme ends of bar without interference of set screws or bolts. One bit is held at an angle of 15° , the other at 90° .

The ARMSTRONG clamp boring bar is made from selected steel.

Each bar is boxed separately and includes two ARMSTRONG High Speed round tool bits (one ground for boring, one for threading) and a hollow screw wrench.

No.	DIMENSIONS		Tool Bit Diameter Inches	For Use with Boring Tool Holder	Approx. Weight Lb.
	Diam. Inches	Length Inches			
951	$\frac{3}{16}$	5	$\frac{3}{32}$	15	.06
952	$\frac{1}{4}$	6	$\frac{1}{8}$	15 or 16	.08
953	$\frac{3}{8}$	7	$\frac{3}{16}$	16 or 17	.25
954	$\frac{1}{2}$	8	$\frac{1}{4}$	16, 17 or 18	.50

SET NO. CB-4 CLAMP BORING BARS



Set consists of four bars in fitted wooden box, one each $\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ " bars (see above), eight round tool bits, and four hollow screw wrenches.

Approximate weight, 1.17 lb.

ARMSTRONG HIGH SPEED ROUND TOOL BITS

For Use in ARMSTRONG Clamp Boring Bars



ARMSTRONG High Speed Round Tool Bits are made of a superior grade of high speed steel; carefully heat treated, hardened, tempered and tested. Bits are furnished ground for boring or threading, as listed.

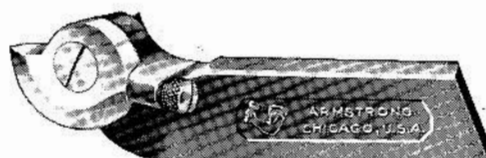
Boring Bit No.	Threading Bit No.	Diameter Bit Inches	For Use with Bar No.	Approx. Weight Lb.
951-B	951-T	$\frac{3}{32}$	951	.04
952-B	952-T	$\frac{1}{8}$	952	.10
953-B	953-T	$\frac{3}{16}$	953	.18
954-B	954-T	$\frac{1}{4}$	954	.25



ARMSTRONG THREADING TOOLS

For Formed Cutters

A Threading Tool is essentially a forming tool and any error or inaccuracy of shape or angle in the tool point will surely be reproduced in the thread and must result in poorly fitted work.



The cutters used in the ARMSTRONG Threading Tool require grinding on the top edge only to sharpen and therefore always remain true to form and of correct angle; their use insures perfect fitting threads and saves much grinding.

The cutters are backed off to afford proper clearance. The back of the cutter is eccentric in form and bears upon a hardened stop screw. This arrangement permits positive and accurate adjustment after grinding.

Drop forged from a special steel, accurately machined, heat treated and hardened, each tool is boxed separately and includes wrench and one ARMSTRONG High Speed Sharp V-thread cutter unless otherwise ordered.

No.	Size of Holder, Inches	For Lathes Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approximate Weight, Lb.
00T	$\frac{5}{16} \times \frac{3}{4} \times 5$	7 to 10	$\frac{3}{4}$	.75
50	$\frac{3}{8} \times \frac{1}{2} \times 5$	10 to 12	$\frac{7}{8}$	.88
51	$\frac{1}{2} \times 1 \frac{1}{8} \times 6$	14 to 16	$1 \frac{1}{8}$	1.50
52	$\frac{5}{8} \times 1 \frac{3}{8} \times 7$	16 to 18	$1 \frac{3}{8}$	2.25
53	$\frac{3}{4} \times 1 \frac{3}{8} \times 8$	18 to 20	$1 \frac{3}{4}$	3.50
54	$\frac{7}{8} \times 1 \frac{3}{4} \times 9$	24 to 36	$1 \frac{7}{8}$	4.25

When ordering tools equipped with American Standard Thread cutters or Whitworth Truncated Standard Thread Form (B.S.W.) cutters, be sure to specify pitch or number of threads per inch wanted. For lists of pitches available, see page 17. Tools equipped with Sharp V-thread cutters will always be shipped unless otherwise ordered. For extra cutters and list of pitches available, see page 17.

ARMSTRONG SPRING THREADING TOOLS

For Formed Cutters



The ARMSTRONG Spring Threading Tool is designed to combine strength and convenience of adjustment and operation with the resiliency necessary in obtaining a smooth, finished thread especially on alloy steels of an extremely tough nature.

Cutters have same features described above.

Each tool is drop forged from a special steel, accurately machined, heat treated, hardened.

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed Sharp V-thread cutter unless otherwise ordered.

No.	Size of Holder, Inches (Inclusive)	For Lathes Approximate Swing, Inches	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight, Lb.
NS-50	$\frac{3}{8} \times \frac{1}{2} \times 5 \frac{1}{2}$	10 to 12	$\frac{7}{8}$	.75
NS-51	$\frac{1}{2} \times 1 \frac{1}{8} \times 6 \frac{1}{2}$	14 to 16	$1 \frac{1}{4}$	1.63
NS-52	$\frac{5}{8} \times 1 \frac{3}{8} \times 7 \frac{1}{2}$	16 to 18	$1 \frac{3}{8}$	3.00
NS-53	$\frac{3}{4} \times 1 \frac{3}{8} \times 8 \frac{1}{2}$	18 to 20	$1 \frac{5}{8}$	4.44

ARMSTRONG SPRING THREADING TOOLS

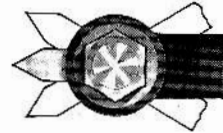
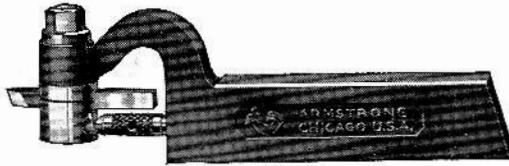
For Square Cutters

The ARMSTRONG Spring Threading Tool is designed to combine strength and convenience of adjustment and operation with the resiliency which is considered by many machinists to be helpful in obtaining a smooth finishing cut or thread, especially on tough alloy steels.

Convenient means is also provided for obtaining complete rigidity when desired as, for instance in taking a roughing cut or doing an ordinary job of turning. The cutter can be held at different angles as shown.

High Speed threading cutters for this tool are furnished ground to Sharp V-thread form.

Any other form required may be quickly ground to shape from standard ARMSTRONG High Speed tool bits.



The cutter can be held at different angles as shown above.

Drop forged from a special steel, accurately machined, heat treated, hardened.

Each tool is boxed separately and includes one ARMSTRONG High Speed Sharp V-thread cutter and wrench. Extra Square Threading Cutters are described below.

No.	Size of Holder, Inches	Size of Cutter Square, Inches	For Lathes Approximate Swing, Inches	Nominal Height from Shank to Cutter Point, Inches	Approx. Weight, Lb.
S-50	$\frac{3}{8} \times \frac{1}{8} \times 5\frac{1}{2}$	$\frac{1}{4}$	10 to 12	$\frac{5}{8}$	.50
S-51	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{5}{16}$	14 to 16	$\frac{3}{4}$	1.00
S-52	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{8}$	16 to 18	$1\frac{1}{16}$	2.00
S-53	$\frac{3}{4} \times 1\frac{1}{2} \times 8\frac{1}{2}$	$\frac{7}{16}$	18 to 20	$1\frac{3}{8}$	3.25

ARMSTRONG FORMED THREADING CUTTERS

Made from Selected High Speed Steel

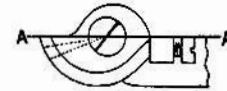
ARMSTRONG Formed Cutters for use with ARMSTRONG Threading Tools are drop forged from selected High Speed Steel.

Grinding and Adjusting Cutters



Always grind the cutter on a line from the point to the center, as indicated by the dotted lines in the accompanying outline view of cutter, then adjust the cutter so that the newly ground cutting edge represented by dotted lines is in a horizontal position or parallel to the line A—A.

When fastening the cutter in position first see that adjusting screw is firmly set against heel of cutter before pulling up nut.



We make and carry in stock single point cutters in treated High Speed Steel, to cut the pitches listed below in Sharp V-thread, American Standard Thread and Whitworth Truncated Standard Thread Form (B.S.W.). Specify pitch except for "V" thread.

For Tool No.	00T, 50 & NS-50	51 & NS-51	52 & NS-52	53, NS-53 & 54
Sharp V-Thread	No. 8151	No. 8153	No. 8155	No. 8157
*American Standard Coarse & Fine....	*8161	*8163	*8165	*8167
*Whitworth Standard (B.S.W.).....	*8171	*8173	*8175	*8177

*In ordering, specify pitch required. Pitches 4 to 32 carried in stock.

ARMSTRONG SQUARE THREADING CUTTERS

ARMSTRONG Square Threading Cutters in treated High Speed Steel are furnished ground to Sharp V-thread form and have all four sides accurately ground, ready for use in ARMSTRONG Spring Threading Tools described above.

For Tool No.	S-50	S-51	S-52	S-53
Size of Cutter	$\frac{1}{4} \times \frac{1}{4} \times 2\frac{1}{2}$	$\frac{5}{16} \times \frac{5}{16} \times 2\frac{1}{2}$	$\frac{3}{8} \times \frac{3}{8} \times 3$	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{1}{2}$
No. of Cutter	8101	8102	8103	8104
Approx. Weight .....	.03	.06	.13	.19

ARMSTRONG KNURLING TOOLS

The ARMSTRONG Knurling Tool is self centering and the knuckle or joint has ample bearing to resist the severe strains of both end and side thrust. In these essentials, this tool is unexcelled. Knurl pins are accurately made of tool steel suitably tempered. Knurls are hob cut from High Speed Steel and

heat treated. All other parts are drop forged or bar steel, hardened. Standard face medium diamond knurls always furnished unless otherwise ordered. Tools can be furnished with either diamond or straight line knurls, standard or full face, fine, medium or coarse pitch. Each tool is separately boxed.



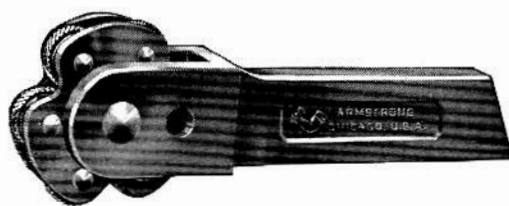
No.	Size of Holder Inches	DIMEN. OF KNURLS			Knurling Capacity Diameter Inches	For Lathes Approx. Swing Inches	Approx. Weight Lb.
		Diam. Inches	Face (Std.) Inches	Hole Inches			
00-K	$\frac{5}{16} \times \frac{3}{4} \times 5$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{1}{8}$ Up	7 to 10	.6
0-K	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{1}{8}$ Up	10 to 12	.9
1-K	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$ Up	14 to 16	1.5
2-K	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$ Up	16 to 18	2.0
4-K	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	1	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{1}{4}$ Up	24 to 36	4.0

Extra Knurls and Knurl Pins are listed below.

With Revolving Head

The advantages of this tool are apparent at a glance. Revolving head is fitted with three pairs of knurls, fine, medium and coarse, any of which can be used without the inconvenience and loss of time incident to changing knurls. Knurl pins are accurately made of tool steel suitably tempered. Knurls are hob cut from High Speed Steel and heat treated. All other parts are drop forged or bar steel, hardened.

Standard face diamond knurls are always furnished unless otherwise ordered.



Tools can be furnished with either diamond or straight line knurls, standard or full face, fine, medium or coarse pitch. Each tool is boxed separately.

Extra Knurl Pins

When ordering, specify by catalog No.

No.	Size of Holder Inches	DIMEN. OF KNURLS			Knurling Capacity Diameter Inches	For Lathes Approx. Swing Inches	Approx. Weight Lb.
		Diam. Inches	Face (Std.) Inches	Hole Inches			
3-K-00	$\frac{5}{16} \times \frac{3}{4} \times 5$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{3}{16}$ Up	7 to 10	1.00
3-K-0	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{1}{32}$	$\frac{3}{16}$ Up	10 to 12	1.25
3-K-1	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$ Up	14 to 16	2.00
3-K-2	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$ Up	16 to 18	2.50

Pair No.	For Tool No.	Pair No.	For Tool No.	Pair. Approx. Wt., Lb.
8095	3-K-00, 3-K-0	8097	00-K, 0-K	.02
8096	3-K-1, 3-K-2	8098	1-K, 2-K	.03
		8099	4-K	.05

ARMSTRONG HIGH SPEED STEEL KNURLS

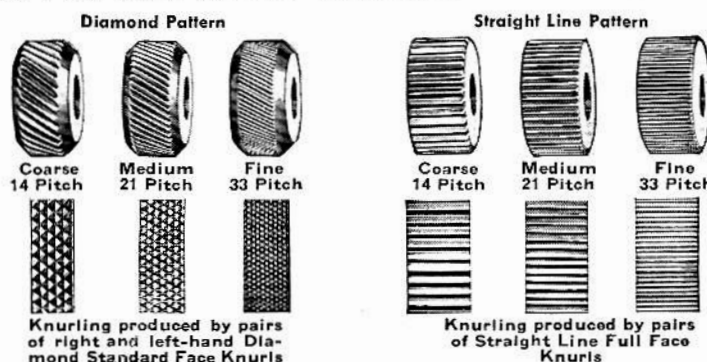


Standard Package

ARMSTRONG Knurls are individually hob-cut to obtain sharp, perfectly formed teeth in every knurl. Consequently these knurls produce work of uniform precision. Held within close limits of accuracy for thickness and for diameter of hole which is always concentric under hob-cut method of manufacture.

Cut from high speed steel, heat treated, tempered and tested.

Knurls are furnished in pairs to fit all standard makes of knurling tools, in diamond or straight line pattern, either standard or full face. When ordering, specify catalog No.



Knurling produced by pairs of right and left-hand Diamond Standard Face Knurls

Knurling produced by pairs of Straight Line Full Face Knurls

Diamond Pattern		Straight Line Pattern		Pitch	For Knurling Tool No.	DIMENSIONS OF KNURLS					Pair Approx. Weight Lb.
Std. Face No.	Full Face No.	Std. Face No.	Full Face No.			Diam. Inches	Std. Face Width Inches	Full Face Width Inches	Hole Diameter Inches	Thickness Inches	
8221	8241	8261	8271	14	00-K, 0-K	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{1}{32}$	$\frac{5}{16}$	.03
8224	8244	8264	8274	21	3-K-00, 3-K-0						
8227	8247	8267	8277	33	*670, *671, *672						
8222	8242	8262	8272	14	1-K, 2-K	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	.06
8225	8245	8265	8275	21	3-K-1, 3-K-2						
8228	8248	8268	8278	33	*673, *674						
8223	8243	8263	8273	14	4-K	1	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{5}{16}$	$\frac{3}{8}$	.13
8226	8246	8266	8276	21							
8229	8249	8269	8279	33							

*Knurling tools for Screw Machines and Turret Lathes, described on page 92

"BIG TEN" TOOL HOLDER SET

The ARMSTRONG "Big Ten" Tool Holder Set includes the ten tools illustrated at right and is so complete as to cover the entire range of lathe work.

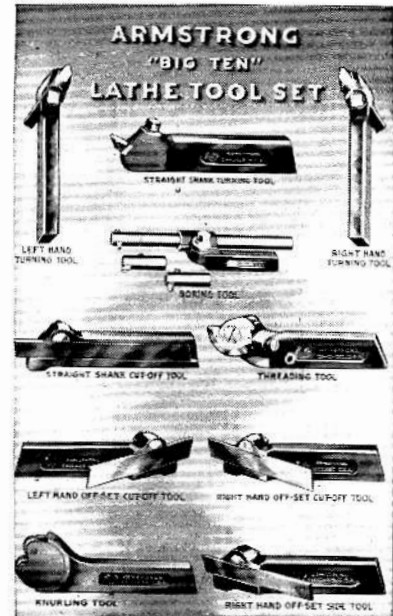
Each set, Nos. A00 to A2 inclusive, is furnished in a special steel case.



"Big Ten" Tool Holder Set

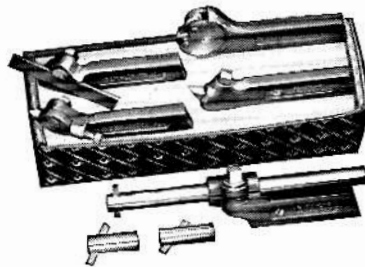
Set No.	Size of Holders Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
A00	$\frac{5}{16} \times \frac{3}{4}$	7 to 10	6.50
A0	$\frac{3}{8} \times \frac{7}{8}$	10 to 12	11.50
A1	$\frac{1}{2} \times 1\frac{1}{8}$	14 to 16	21.00
A2	$\frac{5}{8} \times 1\frac{3}{8}$	16 to 18	27.00
†A3	$\frac{3}{4} \times 1\frac{5}{8}$	18 to 20	46.75
A4	$\frac{7}{8} \times 1\frac{3}{4}$	24 to 36	63.63

†Set consists of 9 tools, no knurling tool.



"HANDY FIVE" TOOL HOLDER SET

The ARMSTRONG "Handy Five" Tool Holder Set includes the five lathe tools which are constantly used on ordinary work: Straight Shank Turning Tool, Boring Tool, Threading Tool, Right-Hand Offset Cutting-off Tool and Self-Centering Knurling Tool.



"Handy Five" Tool Holder Set

Set No.	Size of Holders Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
00-G	$\frac{5}{16} \times \frac{3}{4}$	7 to 10	4.00
0-G	$\frac{3}{8} \times \frac{7}{8}$	10 to 12	5.21
1-G	$\frac{1}{2} \times 1\frac{1}{8}$	14 to 16	9.63
2-G	$\frac{5}{8} \times 1\frac{3}{8}$	16 to 18	16.25
*3-G	$\frac{3}{4} \times 1\frac{5}{8}$	18 to 20	23.00
4-G	$\frac{7}{8} \times 1\frac{3}{4}$	24 to 36	46.69

*Set consists of 4 tools, no knurling tool

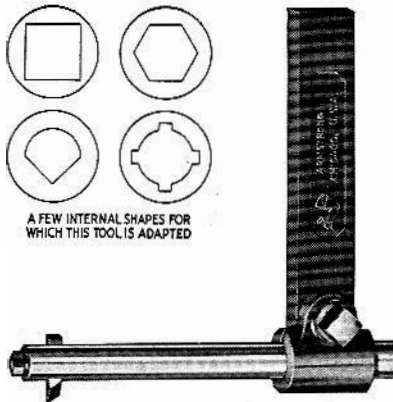
ARMSTRONG EXTENSION SHAPER TOOLS

The ARMSTRONG Extension Shaper Tool is an extremely rigid and convenient tool, well adapted for die work, cutting internal keyways, or for any kind of work on the shaper in which extra clearance is needed.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened. The bars are made from a tough steel and are extremely rigid.

Each tool is boxed separately and includes one holder, one bar, on ARMSTRONG High Speed tool bit and wrench.

For extra High Speed Tool Bits, see page 43.



No.	Size of Holder Inches	Size Bar Inches	Size of Tool Bit Square Inches	Approx. Weight Lb.
*46	$\frac{3}{8} \times \frac{1}{8} \times 5\frac{1}{2}$	$\frac{1}{2} \times 7\frac{1}{2}$	$\frac{3}{16}$	1.13
47	$\frac{1}{2} \times 1\frac{1}{8} \times 7$	$\frac{3}{4} \times 10$	$\frac{5}{16}$	3.25
48	$\frac{5}{8} \times 1\frac{3}{8} \times 8\frac{1}{2}$	$1\frac{5}{8} \times 12$	$\frac{3}{8}$	6.00
49	$\frac{3}{4} \times 1\frac{5}{8} \times 10$	$1\frac{1}{8} \times 14$	$\frac{7}{16}$	9.75

*No. 46 shank employs two hollow set screws to hold the bar instead of split collar illustrated.

EXTRA BARS FOR EXTENSION SHAPER TOOLS

Includes bar, one high speed tool bit and wrench.

No.	DIMENSIONS OF BAR		Size of Tool Bit Square	Fits Tool No.	Approx. Weight Lbs.
	Diam.	Length			
0530	$\frac{1}{2}$	$7\frac{1}{2}$	$\frac{3}{16}$	46	.63
0532	$\frac{5}{8}$	$8\frac{1}{2}$	$\frac{1}{4}$	*	.88
0597	$\frac{3}{4}$	10	$\frac{5}{16}$	47	1.81
0598	$1\frac{1}{16}$	12	$\frac{3}{8}$	48	2.81
0540	$1\frac{1}{8}$	14	$\frac{7}{16}$	49	4.63

*With necessary bushings fits tools Nos. 47, 48 and 49

BUSHINGS FOR EXTENSION SHAPER TOOL BARS

Used for bushing smaller shaper tool bars to larger extension shaper tools.

No.	For Extension Shaper Bar, Diameter	Fits Tool No.	Approx. Weight Lb.	No.	For Extension Shaper Bar, Diameter	Fits Tool No.	Approx. Weight Lb.
0530-A	$\frac{1}{2}$	47	.20	0532-C	$\frac{5}{8}$	49	.50
0530-B	$\frac{1}{2}$	48	.30	0597-A	$\frac{3}{4}$	48	.20
0530-C	$\frac{1}{2}$	49	.60	0597-B	$\frac{3}{4}$	49	.40
0532-A	$\frac{5}{8}$	47	.15	0598-A	$1\frac{1}{16}$	49	.35
0532-B	$\frac{5}{8}$	48	.25	.....	..	..	...



ARMSTRONG PLANER AND SHAPER TOOLS

Convenient—Efficient—Economical

Fig. 1 shows the ARMSTRONG Planer Tool at work in close corners, giving a good general idea of the clearance obtained. It shows also a few of the angles at which the tool bit can be set. A job similar to the one shown could be finished with the ARMSTRONG Planer tool without shifting the position of the work on the bed.

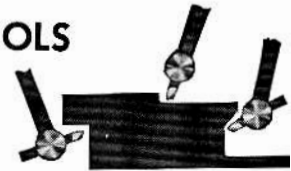


Fig. 1

Fig. 2 shows the ARMSTRONG Planer Tool cutting a keyway with the tool bit reversed and the tool turned around, thus throwing the cutting point behind center of tool and working as a "goose neck" tool.

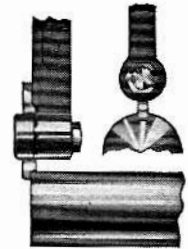


Fig. 2

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

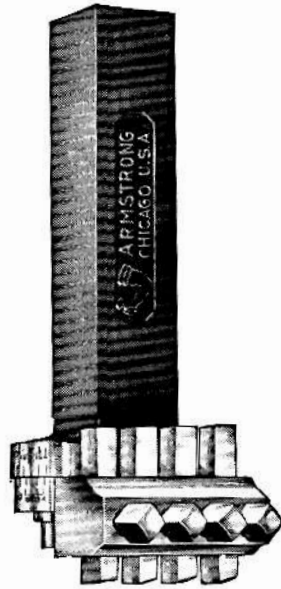
Each Planer and Shaper tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

For extra High Speed Tool Bits, see page 43.

No.	Size of Holder Inches	Size of Tool Bit, Inches	Approx. Wt., Lb.	No.	Size of Holder Inches	Size of Tool Bit, Inches	Approx. Wt., Lb.
*39	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4}$	1.00	42	$1\frac{1}{8} \times 1\frac{3}{4} \times 13$	$\frac{1}{2} \times \frac{3}{4}$	11.0
*40	$\frac{1}{2} \times 1 \times 6$	$\frac{1}{4} \times \frac{3}{8}$	1.75	43	$1\frac{3}{8} \times 2 \times 16$	$\frac{5}{8} \times \frac{7}{8}$	19.5
*401	$\frac{5}{8} \times 1\frac{1}{4} \times 8\frac{1}{2}$	$\frac{5}{16} \times \frac{7}{16}$	3.25	44	$1\frac{7}{8} \times 2\frac{1}{4} \times 19$	$\frac{3}{4} \times 1$	35.0
*41	$\frac{3}{4} \times 1\frac{1}{2} \times 10$	$\frac{3}{8} \times \frac{1}{2}$	5.00	45	$2\frac{1}{8} \times 2\frac{3}{4} \times 22$	$\frac{7}{8} \times 1\frac{1}{8}$	51.0

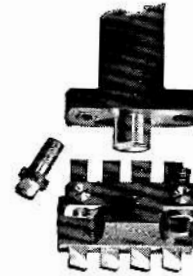
*Shaper sizes.

ARMSTRONG Carbide Tool Holders listed on page 3 are also well adapted to planer and shaper work.



This tool is especially adapted for surfacing large castings. On this class of work it will effect a savings of 50 to 75 per cent in the time required to do the same job with a single point tool.

The head is solidly secured to the shank, upon which it swivels to a limited degree by means of a deep and closely fitted tongue and socket. When set, its position is fixed by two steel collar screws, while two stop screws render slipping of the head impossible. The head is graduated, thus enabling the tool to be quickly and accurately set to any desired feed. This makes it possible to have the tool always cutting at the greatest speed practicable on metals of varying degrees of hardness.



As each chip is comparatively light, with this tool, a planer will carry easily a feed and depth of cut much greater than is possible when using an ordinary tool, and there is much less tendency to "break out" at the end of cut.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

Each tool is boxed separately and includes one set (four) ARMSTRONG High Speed tool bits, wrench and grinding gauge.

For extra High Speed Tool Bits, see page 43.

No.	Size of Holder Inches	Length Overall Inches	Size of Tool Bit Inches	Feed Adjustment Inches	Approx. Wt. Lb.
61	1 1/4 x 1 3/4 x 7 1/2	10	3/8 x 1 1/2	0 to 1/4	10.
62	1 5/8 x 2 1/4 x 9	12	1/2 x 3/4	0 to 3/8	20.
63	2 x 2 1/2 x 11	14	5/8 x 7/8	0 to 1/2	35.

For best results, use ARMSTRONG High Speed Tool Bits—see page 43



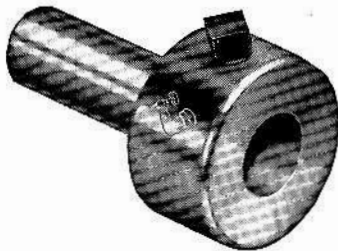
ARMSTRONG TOOL HOLDERS

For Screw Machines and Turret Lathes

PLAIN DRILL HOLDERS

Used for holding drills, reamers, counterbores, hollow mills and flat cutters.
Made from special steel, hardened all over; accurately ground shank and bushing hole.

Each tool is boxed separately and includes wrench.



No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			Extreme Length Inches	Approx. Weight Lb.
	Outside Diameter Inches	Diam. Hole Inches	Length Inches	Outside Diameter Inches	Diam. Hole Inches	Depth Hole Inches		
600	5/8	13/32	2	1 3/4	3/4	3/4	3	.75
601	3/4	15/32	2	1 3/4	3/4	3/4	3	.88
602	7/8	15/32	2 3/8	2	7/8	7/8	3 1/2	1.25
603	1	17/32	2 3/4	2 1/4	1	1	4	1.75
604	1 1/4	25/32	3 1/2	2 7/8	1 1/4	1 1/4	5 1/8	3.75
605	1 1/2	1 1/32	4 3/8	3	1 1/2	1 1/2	6 1/4	5.00

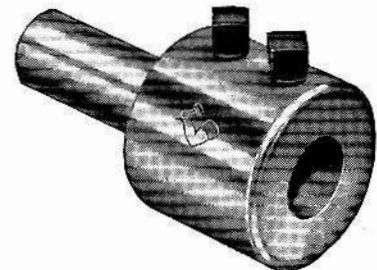
DRILL HOLDERS

Designed to hold either straight shank or taper shank drills. Bushing hole is extra deep and long bushings can be used to reach across several flutes on the drill. A rigid hold on the drill can be obtained under all conditions.

Made from a special steel, hardened all over; shank and bushing hole accurately ground.

Each tool is boxed separately and includes wrench.

No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			Extreme Length Inches	Approx. Wt. Lb.
	Outside Diameter Inches	Diam. Hole Inches	Length Inches	Outside Diameter Inches	Diam. Hole Inches	Depth Hole Inches		
610	5/8	13/32	2 1/8	1 3/4	3/4	1 1/2	3 7/8	1.38
611	3/4	15/32	2 1/8	1 3/4	3/4	1 1/2	3 7/8	1.50
612	7/8	15/32	2 1/4	2	7/8	1 3/4	4 1/4	2.00
613	1	17/32	2 3/8	2 1/4	1	1 13/16	4 1/2	2.75
614	1 1/4	25/32	3	2 7/8	1 1/4	2 1/8	5 1/2	5.13
615	1 1/2	1 1/32	3 5/8	3	1 1/2	2 3/8	6 1/2	6.25

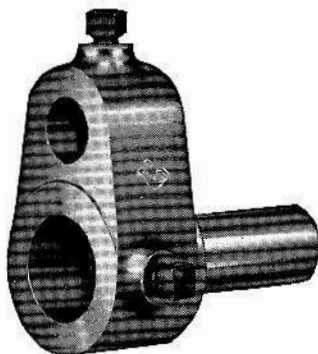


PLAIN TURNERS

Designed to combine a single cutter turning set-up with drilling and boring operations. The top hole takes cutter holders (shown below and on page 23) while the center tool bushing hole locates drills, boring bars and other similar tools.

Plain turners may be held independently or mounted in multiple heads by using tool shank bushings. Each tool is drop forged from a special steel, hardened all over. The center hole and shank are accurately ground.

Each tool is boxed separately and includes wrench.



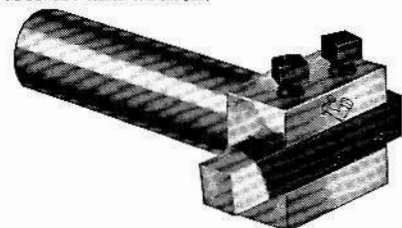
No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			TURNING CAPACITY		Extreme Length Inches	Approx. Weight Lb.
	Outside Diameter Inches	Diam. Hole Inches	Length Inches	Diam. Top Hole Inches	Diam. Center Hole Inches	Depth Center Hole Inches	Diameter Inches	Max. Length Inches		
620	5/8	3/8	2 1/2	3/4	3/4	1 1/8	1/2 to 1 1/4	2	3 7/8	1.50
621	7/8	1/2	2 1/2	3/4	3/4	1 1/8	1/2 to 1 1/4	2	3 7/8	1.75
622	1	5/8	3	7/8	1 1/4	1 1/8	1/2 to 2	2 3/4	4 1/2	3.00
623	1 1/4	3/4	3 1/4	1	1 5/8	1 3/8	3/4 to 2	3 1/4	5 1/8	4.75
624	1 1/2	7/8	3 5/8	1 1/4	1 5/8	1 3/8	2 1/4 to 3 1/2	4 1/4	5 1/2	6.88
625	1 3/4	1	3 7/8	1 1/2	1 3/4	1 1/2	3 3/4 to 5	5	5 15/16	10.50

STRAIGHT CUTTER HOLDERS

Used for turning, facing, chamfering, boring and similar work. Tool slot will take either square or flat tool bits which may be ground to any required form. Can be held in the plain turners described above or mounted in multiple heads by using tool shank bushings. Tool is moved in or out of the support for length of cut. Hardened all over; accurately ground shank.

Each tool is boxed separately and includes one ARMSTRONG High Speed tool bit and wrench.

No.	SHANK		Size of Tool Bit Inches	Extreme Length, In.	Approx. Weight Lb.
	Diameter Inches	Length Inches			
630	5/8	2 1/2	1/4 x 1/4 x 1 3/4	3 1/8	.75
631	3/4	2 1/2	1/4 x 1/4 x 1 3/4	3 1/8	.88
632	7/8	3 1/4	3/8 x 3/8 x 2 3/8	4	1.25
633	1	4	1/2 x 1/2 x 3 1/4	4 7/8	1.88
634	1 1/4	4 3/4	5/8 x 5/8 x 4	5 7/8	3.50
635	1 1/2	5 1/2	3/4 x 3/4 x 5	6 3/4	5.50

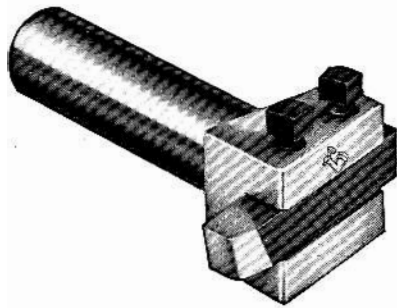


ARMSTRONG TOOL HOLDERS

For Screw Machines and Turret Lathes

ANGLE CUTTER HOLDERS

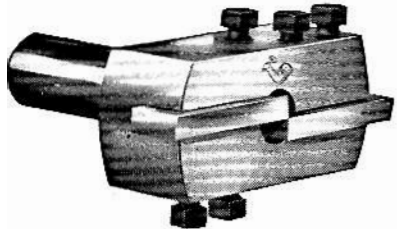
In the ARMSTRONG Angle Cutter Holder, the tool bit is held at an angle of 15° which provides clearance necessary for turning close to a shoulder or to chuck jaws.



Used for turning and boring, this tool can be held in the plain turners described on page 22, or mounted in multiple heads by using tool shank bushings. The tool is moved in or out of the support for

length of cut. Hardened all over; shank accurately ground. Each tool is boxed separately and includes one tool bit and wrench.

No.	SHANK		Size of Tool Bit Inches	Extreme Length Inches	Approx. Weight Lb.
	Diam. Inches	Length Inches			
640	$\frac{5}{8}$	2 $\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	3 $\frac{1}{4}$	.88
641	$\frac{3}{4}$	2 $\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	3 $\frac{1}{4}$	1.00
642	$\frac{7}{8}$	3 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{5}{8}$	4 $\frac{1}{4}$	1.38
643	1	4	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{1}{4}$	5 $\frac{1}{4}$	2.00
644	1 $\frac{1}{4}$	4 $\frac{3}{4}$	$\frac{5}{8} \times \frac{5}{8} \times 4$	6 $\frac{1}{4}$	3.63
645	1 $\frac{1}{2}$	5 $\frac{1}{2}$	$\frac{3}{4} \times \frac{3}{4} \times 5$	7 $\frac{1}{4}$	5.50



ARMSTRONG Facing Tools are used for machining pulleys, gear hubs, flanges and like parts. A solid disc can be faced to the center or the cutters may be ground and adjusted for grooving, recessing, face-forming and counterboring. In conjunction with the latter operations, drills, counterbores, pilots and other tools can be held in the center hole.

Hardened all over. Shank and Center hole are accurately ground. Each tool is boxed separately and includes two ground facing cutters and wrench.

No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			Facing Capacity 0 to Max. Diam. Inches	Extreme Length Inches	Approx. Weight Lb.	High Speed Ground Facing Cutters			
	Outside Diam. Inches	Diam. Hole Inches	Length Inches	Width Inches	Size of Cutter Inches	Diam. Center Hole Inches				No.	For Tool No.	Size, Inches	Approx. Weight Lb.
660	$\frac{5}{8}$	$\frac{25}{64}$	1 $\frac{7}{8}$	2 $\frac{3}{4}$	$\frac{1}{4} \times \frac{3}{4}$	$\frac{5}{8}$	0 to 3	3 $\frac{1}{4}$	1.38	8455A	660	$\frac{1}{4} \times \frac{3}{4} \times 1\frac{1}{4}$	.06
661	$\frac{3}{4}$	$\frac{25}{64}$	1 $\frac{7}{8}$	2 $\frac{3}{4}$	$\frac{1}{4} \times \frac{3}{4}$	$\frac{5}{8}$	0 to 3	3 $\frac{1}{4}$	1.50	8455B	661	$\frac{1}{4} \times \frac{3}{4} \times 1\frac{3}{4}$	.09
662	$\frac{7}{8}$	$\frac{25}{64}$	2 $\frac{1}{16}$	3 $\frac{1}{4}$	$\frac{1}{4} \times \frac{3}{4}$	$\frac{5}{8}$	0 to 3 $\frac{1}{2}$	4	2.38	8455C	662	$\frac{1}{4} \times \frac{3}{4} \times 1\frac{3}{4}$	.13
663	1	$\frac{17}{32}$	2 $\frac{1}{4}$	4	$\frac{5}{16} \times \frac{7}{8}$	$\frac{3}{4}$	0 to 4 $\frac{1}{2}$	4	3.50	8456	663	$\frac{5}{16} \times \frac{7}{8} \times 2\frac{1}{8}$	.19
664	1 $\frac{1}{4}$	$\frac{21}{32}$	2 $\frac{1}{16}$	4 $\frac{3}{4}$	$\frac{3}{8} \times 1$	$\frac{7}{8}$	0 to 5 $\frac{1}{4}$	5 $\frac{1}{2}$	7.00	8457A	664	$\frac{3}{8} \times 1 \times 2\frac{1}{2}$	.25
665	1 $\frac{1}{2}$	$\frac{23}{32}$	3 $\frac{3}{4}$	5	$\frac{3}{8} \times 1$	$\frac{7}{8}$	0 to 5 $\frac{3}{4}$	5 $\frac{1}{2}$	7.63	8457B	665	$\frac{3}{8} \times 1 \times 2\frac{5}{8}$	.31

KNURLING TOOLS

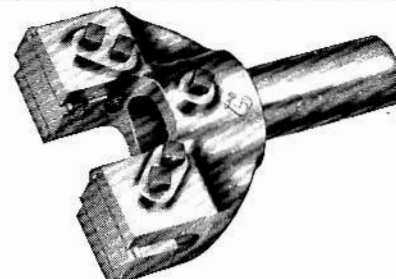
Drop Forged Steel

ARMSTRONG Turret Knurling Tools are designed to hold standard size knurls. Any pattern or pitch knurling may be produced by running out the cross-slides, removing the knurl pins and inserting the knurls required. Knurling capacity of this tool can be quickly adjusted to any diameter within range simply by turning cross-slide feed screws in or out. Cross-slides are locked at proper adjustment by set screws. When necessary a bushing may be used in center

hole to support the work. Each tool is drop forged from a special steel, is accurately machined and hardened throughout. Knurl pins are tempered tool steel. Knurls, described on page 18, are hob cut of high speed steel.

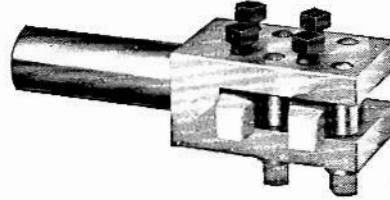
Each tool is boxed separately and includes one pair of medium diamond knurls with standard face, and wrench.

No.	DIMENSIONS OF SHANK			KNURLING CAPACITY		Max. Width Head Inches	Extreme Length Inches	Approx. Weight Lb.
	Diam. Inches	Diam. Hole Inches	Length Inches	Diameter Inches	Max. Length Inches			
670	$\frac{5}{8}$	$\frac{7}{16}$	2 $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{4}$	1 $\frac{5}{8}$	3 $\frac{1}{2}$	4 $\frac{13}{16}$	2.50
671	1	$\frac{7}{16}$	2 $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{4}$	1 $\frac{5}{8}$	3 $\frac{1}{2}$	4 $\frac{13}{16}$	2.75
672	1 $\frac{1}{4}$	$\frac{21}{32}$	3	$\frac{1}{4}$ to 1	2 $\frac{1}{2}$	4 $\frac{3}{4}$	6 $\frac{3}{8}$	5.13
673	1 $\frac{1}{2}$	$\frac{13}{16}$	3 $\frac{1}{16}$	$\frac{1}{4}$ to 1 $\frac{1}{2}$	3 $\frac{1}{4}$	6 $\frac{1}{4}$	7 $\frac{11}{16}$	9.75
674	1 $\frac{3}{4}$	$\frac{29}{32}$	3 $\frac{5}{8}$	$\frac{1}{2}$ to 2	4	7 $\frac{3}{8}$	8 $\frac{7}{8}$	17.00



MULTIPLE CUTTER HOLDERS

Two tool bits can be held in various positions for turning or boring two diameters at the same time and for combining facing or chamfering with turning or boring operations.



This tool can be held in the plain turners described on page 22, or mounted in multiple heads by using

tool shank bushings. Tool is moved in or out of the support for length of cut. When setting cutter screws, the sides of tool are kept from springing apart by the tie screws and bushings which should always be used. Tie screws and set screws are interchangeable in various holes so that the tool bits may be set as desired. Hardened all over and shank is accurately ground. Each tool is boxed separately and includes two tool bits and wrench.

No.	SHANK		Size of Tool Bit Inches	Extreme Length Inches	Approx. Weight Lb.
	Diam. Inches	Length Inches			
650	$\frac{5}{8}$	2 $\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	4 $\frac{5}{8}$	1.13
651	$\frac{3}{4}$	2 $\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	4 $\frac{5}{8}$	1.25
652	$\frac{7}{8}$	3 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{5}{8}$	5 $\frac{13}{16}$	2.25
653	1	3 $\frac{1}{4}$	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{1}{4}$	6 $\frac{1}{4}$	3.38
654	1 $\frac{1}{4}$	3 $\frac{1}{2}$	$\frac{5}{8} \times \frac{5}{8} \times 4$	7 $\frac{1}{8}$	5.88
655	1 $\frac{1}{2}$	4 $\frac{1}{2}$	$\frac{3}{4} \times \frac{3}{4} \times 5$	8 $\frac{7}{8}$	9.88

FACING TOOLS



ACE TOOLS

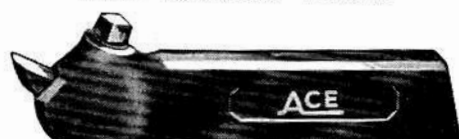
For HOME and SCHOOL SHOPS

ACE Tool Holders are drop forged from special steel, accurately machined, heat treated and hardened. They are especially designed for use in home workshops, school shops or wherever small lathes are used.

Each ACE Tool is a permanent, multi-purpose tool. All take tool bits quickly ground from stock shapes of high speed steel that can be bought anywhere.

ACE metal cutting tools come in two shank sizes.

ACE TURNING TOOLS



Straight Shank Turning Tool



Left-Hand Turning Tool



Right-Hand Turning Tool

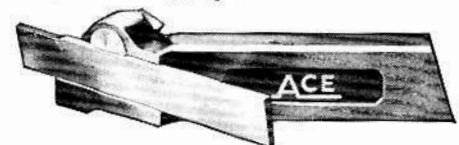
Boxed complete with high speed tool bit and wrench.

No.	Shank Size Inches	*Tool Bit Size Square, In.	For Lathe Size Swing, In.	Approx. Weight Lb.
1010-S	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{16}$	6	.25
1010-R	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{16}$	6	.25
1010-L	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{16}$	6	.25
2010-S	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9-10	.37
2010-R	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9-10	.37
2010-L	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9-10	.37

ACE CUTTING-OFF TOOLS



Straight Shank



Right-Hand Offset

Boxed complete with wrench and high speed beveled cut-off blade.

Cat. No.	Shank Size Inches	†Cut-Off Blade Size Inches	For Lathe Size Swing, In.	Approx. Weight Lb.
1020-R	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{32} \times \frac{1}{2}$	6	.37
2020-S	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9-10	.44
2020-R	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9-10	.44

*See page 41, for High Speed Tool Bits for use in Ace Turning Tools.

†See page 41, for High Speed Cut-off Blades for use in Ace Cutting-off Tools.

Ground to shape form cutters for use in Ace Turning Tools are listed on page 43, Set No. 0136.

ACE LATHE TOOL SETS



Set No. 8AA

With an ACE Lathe Tool Set, you are permanently "Tooled up" for any job. Each ACE Lathe Tool Set provides permanent ACE Tool Holders for every standard lathe operation.

ACE SET NO. 8AA

Shank size, $\frac{3}{8} \times \frac{3}{4}$ ". Furnished mounted on a ply wood panel or in a steel case fitted to hold tools in place. Set consists of 1 each of the tools listed below. Approximate weight 7 lbs.

No.	Description
2010-S	Straight Shank Turning Tool
2010-R	Right-Hand Offset Turning Tool
2010-L	Left-Hand Offset Turning Tool
2080-B	Boring Tool with Plain Bar
2020-S	Straight Cutting-off Tool
2020-R	Right-Hand Offset Cutting-off Tool
2040	Knurling Tool
2050	Threading Tool

ACE SET NO. 8AF

Same Set as No. 8AA, but with No. 2080 Boring Tool replacing No. 2080-B Boring Tool. Approximate weight 7 lbs.

ACE SET NO. 5A

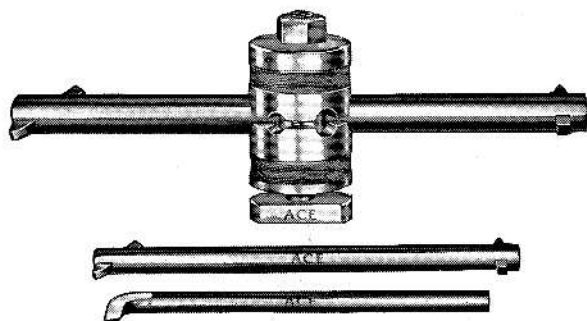
Composed of the following five tools: Nos. 2010-S, 2020-R, 2040, 2050, 2080,—complete in metal box. Approximate weight 4.50 lbs.



ACE TOOLS

For HOME and SCHOOL SHOPS

ACE 3-BAR BORING TOOL



For boring and internal threading. Holder and T-Slot Bolt Head replace the lathe tool post to obtain the most rigid support possible for boring bars. A slight turn of one nut releases or fastens both bar and holder. Complete with three wrenches, four high speed tool bits and three boring bars: one $\frac{3}{8} \times 7$ " forged type boring bar; one $\frac{1}{2} \times 8$ " broached bar for $\frac{3}{16}$ " square tool bit and one $\frac{3}{4} \times 11$ " broached bar for $\frac{1}{4}$ " square tool bit. Each bar has one end broached at a 90° angle and the opposite end broached at a 45° angle.

Note: Bolt head and bottom part of holder must be fitted to lathe dimensions. ACE 3-Bar Boring Tools are furnished specially fitted for use with the following popular lathes at no additional charge.

No.	For Lathe	Weight Lb.
*1455	This tool not fitted	6
1456	South Bend Workshop Lathe	6
1457	Logan 10" Lathe	6
1458	Sheldon 10" Lathe	6
1459	Atlas 10" Lathe	6
1460	Delta 10" Lathe	6

*Will be fitted to your specifications. Dimensions, as shown in drawing on page 13, should be furnished when ordering. Extra charge for fitting.

ACE BROACHED BORING BARS



Opposite ends broached at 45° and 90° angles. Complete with two high speed tool bits and wrench.

No.	BAR SIZE		Tool Bit Size Square, Inches	Weight Lb.
	Diam. Inches	Length Inches		
07-X	$\frac{1}{2}$	8	$\frac{3}{16}$	.53
09-X	$\frac{3}{4}$	11	$\frac{1}{4}$	1.44

ACE BORING TOOL BITS

No.	Bit Size Square, Inches	For Use in Bar No.	Weight Lb.
2322-A	$\frac{3}{16}$	07-X	.02
2324-A	$\frac{1}{4}$	09-X	.03

ACE STYLE D BORING TOOLS



2080

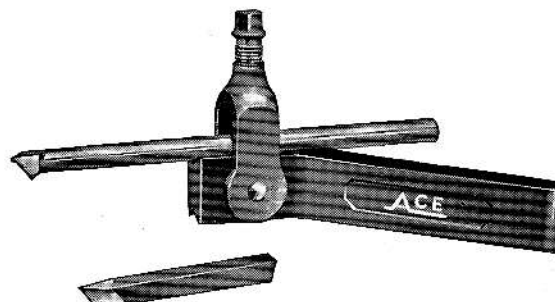


2080-B

For boring and internal threading. With reversible bar clamp. Furnished complete with forged or broached bar. Holder will accommodate $\frac{1}{4}$ to $\frac{1}{2}$ " bars.

No.	Shank Size Inches	Furnished with Bar Inches	For Lathe Inches	Weight Lb.
2080	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4} \times 5$ Forged	9-10	.12
2080-B	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{2} \times 8$ Broached	9-10	.20

ACE BORING TOOL HOLDER



For Turning, Boring and internal Threading. Boxed complete with forged boring bar, $\frac{1}{4}$ " square high speed tool bit and wrench.

Cat. No.	Shank Size	Furnished with Bar, Size	Will Accommodate Bar, Dia., In.	For Lathes	Approx. Wt. Lbs.
1030	$\frac{3}{16} \times \frac{1}{2}$	$\frac{1}{4} \times 5$	$\frac{1}{8}$ to $\frac{7}{16}$	6"	.50
2030	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4} \times 5$	$\frac{1}{8}$ to $\frac{1}{4}$	9-10"	.56

No. 2030 holder is reversible for use either right or left hand.

ACE FORGED BORING BARS



No.	BAR SIZE		Lathe Size Inches	Weight Lb.
	Diam. Inches	Length Inches		
8140-A	$\frac{1}{8}$	4	9-10, 6	.02
8141-A	$\frac{3}{16}$	4 $\frac{1}{2}$	9-10, 6	.03
8142-A	$\frac{1}{4}$	5	9-10, 6	.09
8143-A	$\frac{5}{16}$	6	9-10, 6	.11
8144-A	$\frac{3}{8}$	7	9-10, 6	.22
8145-A	$\frac{1}{2}$	8	9-10, 6	.34
0383	Set of 6 1 of each, $\frac{1}{8}$ to $\frac{1}{16}$		9-10, 6	.93



ACE TOOLS

For HOME and SCHOOL SHOPS



ACE KNURLING TOOLS

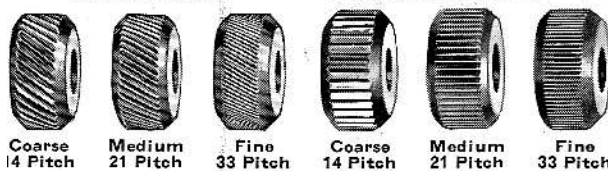
Boxed complete with self-centering head and one pair of medium 21 pitch, diamond knurls.

No.	Shank Size, In.	Lathe Size, In.	Wt., Lb.
1040	$\frac{5}{16} \times \frac{1}{2}$	6	.37
2040	$\frac{3}{8} \times \frac{3}{4}$	9—10	.44

ACE KNURLS

Diamond Pattern

Straight Line Pattern



Knurling produced by pairs of right and left-hand diamond pattern knurls.

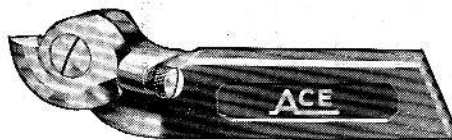
Knurling produced by pairs of straight line pattern knurls.

Furnished in pairs only. Fit ACE Knurling Tools.

Note: Pitch=number of teeth per lineal inch.

Pattern	Coarse 14 Pitch	Medium 21 Pitch	Fine 33 Pitch	Wt. Lb.
Diamond Pattern	8221-A	8224-A	8227-A	.04
Straight Line Pattern	8261-A	8264-A	8267-A	.04

ACE THREADING TOOLS



Boxed complete with wrench and one high speed 30° Sharp V-form thread cutter, ground ready for use.

No.	Shank Size, In.	Lathe Size, In.	Wt., Lb.
1050	$\frac{5}{16} \times \frac{1}{2}$	6	.38
2050	$\frac{3}{8} \times \frac{3}{4}$	9—10	.44

ACE FORMED THREADING CUTTERS



Sharp V 60° formed threading cutters will always be furnished unless American National Coarse (U.S. Std.) or modified British Standard Whitworth (B.S.W.) are specified.

Flat top grinding only is required to sharpen.

No.	For Ace Threading Tool Nos.	Wt., Lb.
8160	2050, 1050	.04



ACE SHAPER TOOL

Boxed separately with high speed steel tool bit and wrench.

Drop forged from special steel, accurately machined, heat treated and hardened.

Tool bit can be held at various angles

No.	Shank Size Inches	Bit Size Square, Inches	Weight Lb.
2060	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{1}{4}$	.88

ACE EXTENSION SHAPER TOOL

Exceptionally rigid, especially adapted for cutting internal keyways and for any work on the shaper requiring extra clearance. Drop forged from special steel, heat treated and hardened. Polished steel bar.

Diameter of bar, $\frac{1}{2}$ inch.

Internal keyseating capacity, $5\frac{1}{2}$ in.

Boxed complete with bar, high speed tool bit and wrench.

No.	Shank Size Inches	Bit Size Square, Inches	Weight Lb.
2046	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{3}{16}$	.94

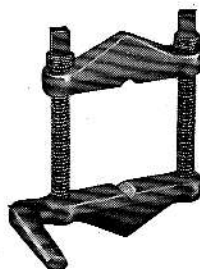
ACE LATHE DOGS



For working on centers without chuck. Drop forged with special steel screws hardened at point.

No.	Capacity, In.	Wt., Lb.
101	$\frac{3}{8}$	.25
201	$\frac{1}{2}$	.25
301	$\frac{3}{4}$	.37
401	1	.53
501	$1\frac{1}{4}$	.81
601	$1\frac{1}{2}$	.62

ACE CLAMP LATHE DOGS



Drop forged of steel, machined and hardened. Under face of screw heads is convex which allows considerable tilting without binding screws.

No.	Capacity Between Screws, Inches	Wt. Lb.
2011	$1\frac{3}{4}$	.53
2012	$2\frac{1}{4}$	.75

ARMSTRONG IMPROVED LATHE TOOL POSTS

The ARMSTRONG Improved Lathe Tool Post combines the strength and holding power of the strap and stud tool clamp with the convenience of the "open side" and ordinary set screw tool post.

Points of Superiority

It is stronger and stiffer than the ordinary tool post; will not slip or chatter and consequently will do more accurate work.

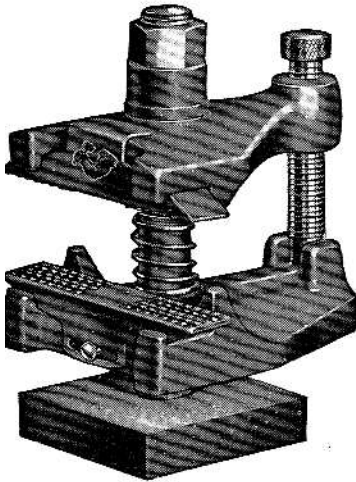
No side projection, peculiarly adapted to working close up to chuck.

It has a great range of adjustment without loss of holding power as the rocker jaws adjust themselves on parallel lines.

Open side design permits rapid and convenient change and adjustment of tools.

It will not cut or tear the tool shank, and is therefore peculiarly adapted to use in connection with tool holders. The body parts and jaws are drop forged of steel and hardened. Other parts are bar steel.

Each tool post is boxed separately and includes wrench.



No.	For Tools Size Inches	For Lathes Swing, Inches	Approx. Wt., Lb.
1-T	$\frac{1}{2} \times 1\frac{1}{8}$ and Less	12 to 14	5.0
2-T	$\frac{5}{8} \times 1\frac{3}{8}$ and $\frac{3}{4} \times 1\frac{1}{8}$	16 to 18	8.5
3-T	$\frac{3}{4} \times 1\frac{5}{8}$ and $\frac{7}{8} \times 1\frac{3}{4}$	20 to 22	11.5
4-T	$\frac{7}{8} \times 1\frac{3}{4}$ and 1 x 2	24 to 32	18.0

Note: Bolt head and base forging are made large enough to allow for fitting. This is made necessary by the variation in size of T slots and center heights in lathes of different manufacture. Fitting—An extra charge will be made for fitting tool post to individual lathe dimensions. Dimensions, as shown in the drawing on page 13, should be furnished when ordering a fitted tool post.

ARMSTRONG TOOL POST FITTINGS

Unfinished

ARMSTRONG Tool Post Fittings are drop forged of selected steel—not machined or heat treated.

For Changing Angles of Lathe Tools



No.	Legth. In.	Width Top In.	Width Ex- treme In.	Ex- treme Thick- ness In.	Radius, In.	For Use with Post No.	For Use with Ring No.	Approx. Wt. Lb.
5	$2\frac{13}{32}$	$\frac{13}{32}$	$\frac{1}{2}$	$\frac{11}{32}$	3	5	5	.06
10	3	$\frac{9}{16}$	$\frac{21}{32}$	$\frac{31}{64}$	$2\frac{7}{8}$	10	10	.13
11	$3\frac{3}{8}$	$\frac{1}{2}$	$\frac{19}{32}$	$\frac{25}{64}$	$4\frac{3}{8}$	20	11	.09
15	$3\frac{3}{8}$	$\frac{5}{8}$	$\frac{23}{32}$	$\frac{7}{16}$	$4\frac{5}{8}$	20	11	.16
18	$3\frac{7}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{15}{32}$	$4\frac{1}{2}$	30	11, 20	.18
20	$3\frac{7}{8}$	$\frac{11}{16}$	$\frac{13}{16}$	$\frac{17}{32}$	$4\frac{3}{4}$	30	20	.22
30	$4\frac{3}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$	$5\frac{1}{2}$	40	30	.25
40	$4\frac{7}{8}$	$\frac{13}{16}$	$\frac{15}{16}$	$\frac{21}{32}$	$5\frac{3}{4}$	40	40	.44
60	$5\frac{1}{4}$	$\frac{13}{16}$	$\frac{13}{32}$	$\frac{3}{4}$	6	50	60	.63
65	$5\frac{5}{16}$	$\frac{7}{8}$	$\frac{11}{32}$	$\frac{29}{32}$	5	..	..	.75

For Changing Angles of Lathe Tools



No.	Diam. Out- side In.	Diam. Hole In.	Thick- ness Edge In.	Radius of Con- cave In.	For Use with Post No.	For Use with Wedge No.	Approx Wt. Lb.
5	$2\frac{1}{4}$	$1\frac{1}{16}$	$\frac{3}{8}$	3	5	5	.25
10	$2\frac{5}{16}$	$1\frac{3}{16}$	$\frac{7}{16}$	$2\frac{7}{8}$	10	10	.50
11	3	$1\frac{5}{8}$	$\frac{7}{16}$	$4\frac{5}{8}$	20	11, 15	.50
14	$3\frac{3}{16}$	$1\frac{1}{16}$	$\frac{5}{8}$	$4\frac{5}{8}$	23	18, 20	.75
18	$3\frac{7}{16}$	$1\frac{9}{16}$	$\frac{11}{16}$	$4\frac{1}{2}$	28	18	1.30
20	$3\frac{7}{16}$	$1\frac{9}{16}$	$\frac{9}{16}$	$4\frac{3}{4}$	30	18, 20	.94
30	$3\frac{1}{2}$	2	$\frac{3}{4}$	$5\frac{1}{2}$	40	30	1.30
40	4	2	$\frac{3}{4}$	$5\frac{3}{4}$	40	40	1.80
60	$4\frac{1}{2}$	$2\frac{3}{16}$	$\frac{3}{4}$	6	50	60	2.20



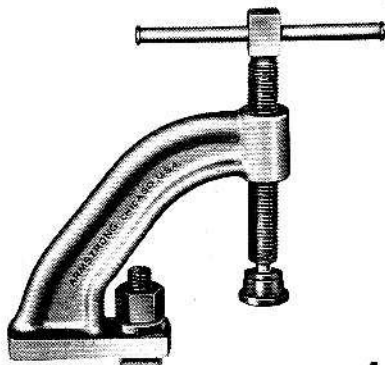
ARMSTRONG "T" SLOT CLAMPS

Drop Forged Steel

Used for holding down work on planers, drill presses, milling machines and other machines having slotted tables. One or more clamps may be mounted in "T" slot or slots

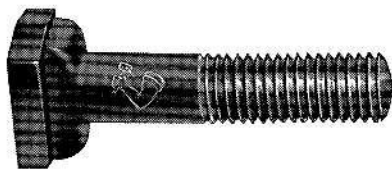
by running T-slot bolt with which each clamp is equipped into slot. Clamp is fixed in desired position by tightening nut and work is held by tightening down screw.

The clamp bodies are drop forged from a selected grade of steel, are heat treated to insure the maximum degree of strength and finished in gray baked-on enamel. The heavy duty heat-treated screw is equipped with sliding pin handle. The point is equipped with a V-slotted patented, ball-joint swivel pad (that cannot come off) to facilitate holding small rounds in addition to flat surfaces. Each clamp is furnished with one ARMSTRONG T-slot bolt, nut and washer. Separately boxed.



No.	Capacity Inches	Equipped with Armstrong T-Slot Bolt, Nut and Washer Inches	Front of Foot to Center of Screw Inches	Approx. Weight Lb.
712	0-2 1/4	1/2 x 1 1/2	2	3.10
713	0-3 1/4	5/8 x 2	2 1/4	4.63
713-B	0-3 1/4	3/4 x 2 1/2	2 1/4	5.00

ARMSTRONG "T" SLOT BOLTS



ARMSTRONG "T" Slot Bolts are used for setting up work on planers, shapers, milling machines and other similar applications. Forged from selected steel. Will fit "T" slots without machining. Threaded American National Coarse, U.S. Std., ready for use.

Cannot turn in machine table and will not break out machine table slots.

Packaged 25 to a box in lengths up to and including 6 inches, longer lengths not boxed.

Length Under Head Inches	3/8" T-Slot Size		1/2" T-Slot Size		5/8" T-Slot Size		3/4" T-Slot Size		7/8" T-Slot Size		1" T-Slot Size	
	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.
1	7984	.05										
1 1/2	7990	.06	8281	.16	8301	.27						
2	7991	.08	8282	.18	8302	.29	8322	.49				
2 1/2	7992	.09	8283	.21	8303	.33	8323	.55	7700	.79		
3	7993	.11	8284	.24	8304	.37	8324	.60	7701	.86	7719	1.16
3 1/2	7994	.12	8285	.26	8305	.42	8325	.67	7702	.92		
4	7995	.14	8286	.29	8306	.47	8326	.73	7703	.98	7720	1.33
4 1/2	7996	.15	8287	.31	8307	.52	8327	.79	7704	1.04		
5	7997	.16	8288	.35	8308	.56	8328	.84	7705	1.10	7721	1.49
5 1/2	7998	.18	8289	.38	8309	.60	8329	.91	7706	1.17		
6	7999	.19	8290	.40	8310	.64	8330	.96	7707	1.23	7722	1.66
7	7999-A	.22	8290-A	.44	8310-A	.71	8330-A	1.10	7708	1.35	7723	1.83
8	8000	.26	8291	.49	8311	.75	8331	1.20	7709	1.47	7724	2.00
10			8292	.61	8312	.96	8332	1.40	7711	1.72	7726	2.34
12			8293	.71	8313	1.10	8333	1.70	7712	1.97	7727	2.68
14					8314	1.30	8334	1.70	7713	2.22	7728	3.01
16					8315	1.50	8335	2.20	7714	2.47	7729	3.35
18					8316	1.70	8336	2.40	7715	2.71	7730	3.69
20					8317	1.80	8337	2.60	7716	2.96	7731	4.03

ARMSTRONG "T" SLOT NUTS

Forged Steel



For use with studs in "T" slots of planers, shapers, boring mills, milling machines, heavy types of punch presses and machine based castings having "T" slots. Like our "T" Slot Bolts, they will fit "T" slots without machining. Furnished tapped with American National Coarse (U.S. Std.) Threads. Packed 25 in box.

No.	T-Slot Size Inches	U.S. Std. Threads	Approx. Wt., Lb.
5-TN	5/8	1/2-13	.20
6-TN	3/4	5/8-11	.30
7-TN	7/8	3/4-10	.45
8-TN	1	7/8-9	.70

ARMSTRONG NUTS



ARMSTRONG Nuts for T-slot bolts are made from a special steel and are heat treated. Furnished only with American National Coarse (U.S. Std.) Threads.

No.	Bolt Diam. Inches	Across Flats Inches	Thick- ness Inches	Approx. Wt. Lb.
*N-19	3/8	1 1/16	1/2	.06
*N-20	1/2	7/8	5/8	.08
*N-21	5/8	1 1/16	3/4	.17
†N-22	3/4	1 1/4	7/8	.25
†N-23	7/8	1 7/16	1	.34

*Packaged 100 to the box,
†Packaged 50 to the box.

ARMSTRONG WASHERS



ARMSTRONG Washers for T-slot bolts are heavy, extra thick washers, made from high carbon cold rolled steel Heat treated. Furnished in standard packages of 100 to a box.

No.	Bolt Diam. Inches	Inside Diam. Inches	Outside Diam. Inches	Thick- ness Inches	Approx. Wt. Lb.
W-9	3/8	7/16	7/8	3/16	.03
W-10	1/2	9/16	1	3/16	.03
W-11	5/8	23/32	1 1/4	1/4	.06
W-12	3/4	27/32	1 1/2	1/4	.13
W-13	7/8	31/32	1 3/4	1/4	.20



ARMSTRONG MACHINE STRAP CLAMPS

Drop Forged Steel

For holding down work, dies and fixtures on planers, punch presses, milling machines, boring mills and drill presses. Drop forged from carefully selected steel, uniformly heat treated to increase strength and stiffness.

It is a profitable practice to provide a full assortment of ARMSTRONG Machine Strap Clamps for holding down work safely and securely.

ARMSTRONG PLAIN CLAMP



No.	Length Inches	Width Inches	Thick- ness Inches	SIZE OF SLOT		Approx. Weight Lb.
				Width Inches	Length Inches	
54	4	1 5/8	3/4	1 1/16	1 3/8	1.00
56	6	1 3/4	7/8	1 1/16	2 1/16	1.75
58	8	2 1/8	1 1/8	1 3/16	2 13/16	3.75
59	10	2 1/2	1 3/8	1 5/16	3 11/16	7.00

ARMSTRONG FINGER CLAMP



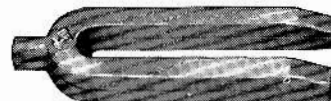
No.	Lgth. In.	Width Inches	Thick- ness Inches	SIZE OF SLOT		SIZE FINGER		Approx. Weight Lb.
				Width Inches	Length Inches	Diam. Inches	Length Inches	
44	4	1 3/8	3/4	1 1/16	1 3/8	1/2	1 1/2	.75
46	6	1 3/4	7/8	1 1/16	1 11/16	5/8	5/8	1.50
48	8	2 1/8	1 1/8	1 3/16	2 9/16	3/4	3/4	3.00

ARMSTRONG SCREW HEEL CLAMP



No.	Length Inches	Width Inches	Thick- ness Inches	SIZE OF SLOT		Approx. Weight Lb.
				Width Inches	Length Inches	
54-A	4	1 5/8	3/4	1 1/16	1 3/8	1.13
56-A	6	1 3/4	7/8	1 1/16	2 1/16	2.00
58-A	8	2 1/8	1 1/8	1 3/16	2 13/16	4.00
59-A	10	2 1/2	1 3/8	1 5/16	3 11/16	7.25

ARMSTRONG "U" CLAMP



No.	Lgth. In.	Width In.	Thick- ness In.	SIZE OF SLOT		SIZE FINGER		Approx. Weight Lb.
				Width Inches	Length Inches	Diam. Inches	Length Inches	
64	4	1 3/4	3/4	1 1/16	3 1/2	9/16	9/16	1.0
66	6	2	7/8	1 1/16	5 1/2	1 1/16	1 1/16	2.0
68	8	2 3/8	1 1/8	1 3/16	7 3/8	1 3/16	1 3/16	4.0
110	10	2 3/4	1 1/4	1 5/16	9	1 5/16	1 5/16	6.5
112	12	3 1/4	1 3/8	1 1/16	11	1 1/16	1 1/16	11.0

ARMSTRONG GOOSE NECK CLAMP



No.	Lgth. In.	Width Inches	Thick- ness Inches	SIZE OF SLOT		Offset Inches	Approx. Weight Lb.
				Width Inches	Length Inches		
74	4	1 3/8	3/4	1 1/16	1 5/16	1 3/16	1.00
76	6	1 3/4	7/8	1 1/16	1 11/16	1 5/16	2.00
78	8	2 1/8	1 1/8	1 3/16	2 1/16	1 1/8	4.25

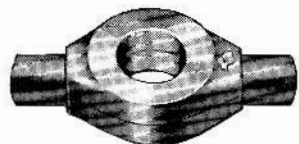
ARMSTRONG UNIVERSAL ADJUSTABLE CLAMP



Designed for holding work on planers, boring mills, drill presses, milling machines and machine based castings with "T" slots, without blocks and shims. Saddle position may be changed to keep the tie bolt vertical.

No.	Length Inches	Width Clamp Inches	Adjust- ment Inches	Max. T-Slot Bolt Size Inches	Extra Saddles No.	APPROX. WT., LB.	
						Extra Saddle	Com- plete
21	5 1/16	1 5/8	2 1/4	5/8	21S	.19	1.3
22	8	2 1/8	4	3/4	22S	.31	3.1
23	12	2 3/4	6 1/4	1	23S	.75	9.8

ARMSTRONG DOUBLE FINGER CLAMP



No.	Lgth. In.	Width Inches	Thick- ness Inches	Diam. Hole Inches	SIZE FINGERS		Approx. Weight Lb.
					Diam. Inches	Length Inches	
30	3	1 1/2	5/8	1 1/16	1/2	1/2	.38
35	3 1/2	1 5/8	3/4	1 1/16	5/8	5/8	.63
40	4	1 13/16	7/8	1 3/16	3/4	3/4	.88

ARMSTRONG SET-UP WEDGES

Used for setting-up work on planers, shapers, milling machines and other similar applications. Std. package 10.



No.	Lgth. In.	Wdth. In.	Thick End In.	Approx. Weight Lb.
3WG	3	1	1/4	.12
5WG	5	1	1/2	.31
6WG	6	1 1/4	3/4	.62



ARMSTRONG JACKS AND STEP BLOCKS

PLANER JACKS

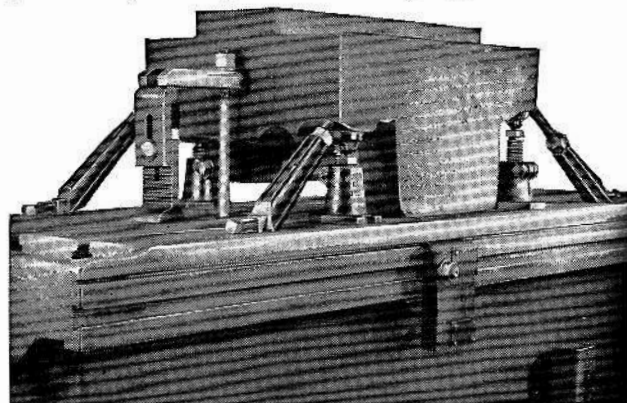
For Leveling Work on Machine Tools

ARMSTRONG Planer Jacks are designed to replace the haphazard devices and methods quite generally in use for leveling work on machine tools and a glance will show any mechanic their convenience and utility. A set of them on a machine will greatly reduce the time required for preliminary arrangements as compared with the actual time on the job, and will moreover, by their perfect adjustability and solidity, insure good, true surfaced work.

Separately boxed.



No.	HEIGHT		Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches		
1	27/8	33/4	3	1.5
2	4	5 1/4	5	3.0
3	5 3/8	7 1/2	8	6.0
4	7 1/2	12	12	12.0



Showing Use of Setting-up Tools

ADJUSTABLE STEP BLOCKS

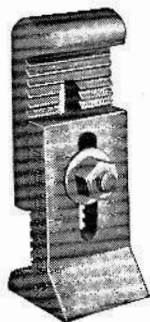
Convenient—Sturdy

ARMSTRONG Adjustable Step Blocks are used for giving various heights for set-up work in tool rooms and machine shops.

Designed to replace makeshift devices frequently used and to provide easily adjustable rigid blocking.

Made of certified malleable iron, these blocks are finished in gray baked-on enamel.

Each block is boxed separately.



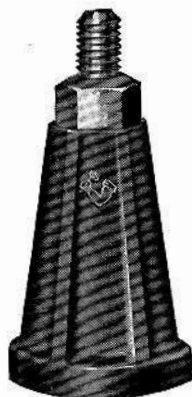
No.	HEIGHT		Width of Block Inches	Adjustment Inches	Approx. Weight Lb.
	Contracted Inches	Extended Inches			
251	5 1/2	7 3/4	2 1/16	1/4	5.75

VERTICAL AND BRACING JACKS

Non-Skid—Cut Clamping Costs

These jacks combine ease of operation and great power with an absolutely straight thrust as neither base nor screw revolve; the nut is the only part which turns. This design prevents "creeping" and permits setting the jack under the fillet or sloping surface without danger of slipping.

Each jack is separately boxed.



Vertical Jack

No.	HEIGHT		Diam. Screw Inches	Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches			
351	27/8	4 1/8	5/8	2	1.50
352	4 1/8	6 5/8	5/8	2	2.00
353	7 1/8	11 1/2	3/4	3	5.25
354	9	14 3/4	1	5	7.00

Bracing Jacks

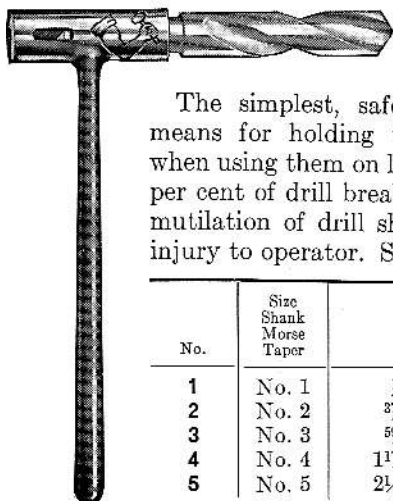
No.	HEIGHT		Diam. Screw Inches	Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches			
361	37/8	5 1/2	5/8	2	1.00
362	47/8	7 1/4	5/8	2	1.50
363	7 1/8	11 1/2	3/4	3	2.75
364	9 1/8	15 1/2	3/4	3	4.00



Bracing Jack

ARMSTRONG DRILL HOLDERS

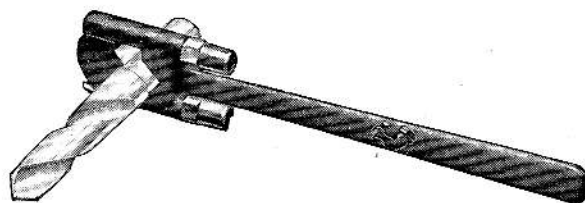
SAFETY DRILL HOLDER



The simplest, safest, most efficient means for holding taper shank drills when using them on lathe; eliminates 90 per cent of drill breakage in such work, mutilation of drill shanks and sockets, injury to operator. Separately boxed.

No.	Size Shank Morse Taper	Holds Drills, Inches	Approx. Wt., Lb.
1	No. 1	$\frac{1}{16}$ to $\frac{9}{16}$	1.5
2	No. 2	$\frac{37}{64}$ to $\frac{29}{32}$	2.0
3	No. 3	$\frac{59}{64}$ to $1\frac{1}{4}$	4.0
4	No. 4	$1\frac{17}{64}$ to 2	7.0
5	No. 5	$2\frac{1}{64}$ to 3	14.5

"U" CLAMP DRILL HOLDER



This tool is designed for use in holding straight shank drills, reamers or similar tools, with safety to the operator and without danger of injury to the tool held. Each drill holder is boxed separately.

No.	Capacity Inches	Length Inches	Approx. Wt., Lb.
200	$\frac{3}{8}$ to 1	11	2.25
300	$\frac{5}{8}$ to $1\frac{1}{2}$	13	4.00
400	$\frac{7}{8}$ to 2	$15\frac{1}{2}$	7.00
500	$1\frac{1}{4}$ to 3	18	13.75

ARMSTRONG GRINDING HOLDERS

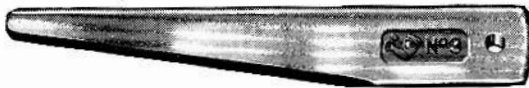
ARMSTRONG Grinding Holders are convenient and inexpensive. Tool holders are frequently ruined by workmen holding cutters in them while grinding or sharpening and this wasteful practice can be corrected by the use of these grinding holders.



No.	Holds Cutters	Approx. Wt., Lb.
1-G	$\frac{3}{16}$ and $\frac{1}{4}$ " Square	1.00
2-G	$\frac{3}{16}$ and $\frac{3}{8}$ " Square	1.50
3-G	$\frac{7}{16}$ and $\frac{1}{2}$ " Square	2.25
4-G	$\frac{5}{8}$ and $\frac{3}{4}$ " Square	3.50

ARMSTRONG DRILL DRIFTS

PLAIN DRILL DRIFTS



ARMSTRONG Plain Drill Drifts are drop forged from selected steel, finished and hardened.

Standard package 10.

No.	Length Inches	Fitting Sockets and Sleeves	Approx. Wt., Lb.
1	5	No. 1	.13
2	6	No. 2	.25
3	7	No. 3	.50
4	8½	No. 4, 5, 6	1.00

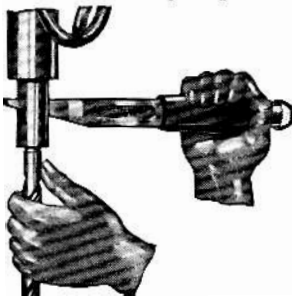
SAFETY DRILL DRIFTS

Automatic—Convenient—Effective

The ARMSTRONG Safety Drift combines hammer and drift, thus leaving one hand to support the tool to be removed. See illustration below.



The heavy handle or driver is slidably mounted upon the blade, which is automatically kept extended, when not in operation, by a low tension coil spring.



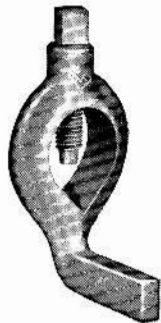
In operating, the point of the blade is inserted in the slot of the drill socket and handle driven forcibly up blade, until it strikes butt end of drift—it will strike a blow sufficiently heavy to remove the most stubborn drill.

No.	Capacity Morse Taper	Recommended for	Approx. Wt., Lb.	Extra Blades Only	
				No.	Approx. Wt., Lb.
1-A	No. 1, 2 or 3	No. 1 or 2	1.50	8451	.25
2-A	No. 2, 3 or 4	No. 2 or 3	2.50	8452	.50
3-A	No. 3, 4 or 5	No. 3 or 4	3.75	8453	.90
4-A	No. 4, 5 or 6	No. 4 or 5	6.00	8454	1.10

ARMSTRONG MILLING MACHINE AND CLAMP LATHE DOGS

MILLING MACHINE DOGS

Drop Forged Steel



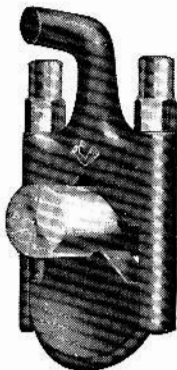
These dogs are recommended for use on taper work carried between centers on millin machines. The flat tail engages the head slot without the backlash produced by taper tail dogs.

Hubs are large enough to permit re-tapping. Screws are made from selected steel with American National Coarse (U.S. Standard) thread and are hardened on the point, the improve shape of which also renders them less liable to flange or upset.

No.	Capacity Inches	Approx. Wt., Lb.	No.	Capacity Inches	Approx. Wt., Lb.
42	$\frac{1}{2}$	.75	46	$1\frac{1}{2}$	1.50
43	$\frac{3}{4}$	.88	47	$1\frac{3}{4}$	1.63
44	1	1.00	48	2	2.00
45	$1\frac{1}{4}$	1.25	..	...	....

SAFETY CLAMP LATHE DOGS

Practical—Safe—Well Balanced

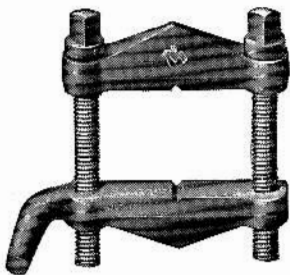


ARMSTRONG Safety Clamp Lathe Dogs are constructed to combine a wide range of adjustment with the convenient features of the clamp dog and the simplicity and strength of the ordinary lathe dog. They will accommodate themselves readily to work of any shape and will hold it securely and squarely, being especially adapted for use on finished work which would be liable to be damaged by the set screw of a common lathe dog. The sliding jaw is operated by a loose fitting U bolt, the ends of which are protected by safety sleeve nuts and can be adjusted to size very quickly, only a wrench being necessary to tighten. One advantage of this dog is that it can be applied without removing work from centers.

No.	Capacity Inches	Approx. Wt., Lb.	No.	Capacity Inches	Approx. Wt., Lb.
1-U	$\frac{1}{8}$ to $\frac{5}{8}$	.63	5-U	$1\frac{1}{4}$ to 3	9.5
2-U	$\frac{3}{8}$ to 1	1.75	6-U	$1\frac{3}{4}$ to 4	16.0
3-U	$\frac{5}{8}$ to $1\frac{1}{2}$	3.00	7-U	$2\frac{1}{2}$ to 5	21.0
4-U	$\frac{7}{8}$ to 2	4.50	....	.....	....

CLAMP LATHE DOGS

Drop Forged Steel



The under face of screw heads is convex, fitting into a concave seat, and as the holes in upper bar are larger than the screw, this allows for considerable tilting without bending the screws. The clamp bars are forged from a stiff, open heart steel, carefully machined and hardened. Screws are hardened. Separately boxed.

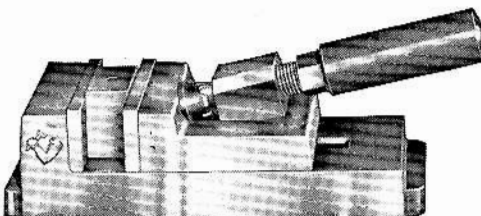
No.	Cap. Between Screws Inches	Approx. Wt., Lb.	No.	Cap. Between Screws Inches	Approx. Wt., Lb.
11	$1\frac{3}{4}$	.63	13	$2\frac{3}{4}$	1.75
12	$2\frac{1}{4}$	1.00	14	$3\frac{1}{2}$	2.75

ARMSTRONG QUICK-ACTION DRILL VISE

A handy vise for tool makers and general machine shop use.

Points of Advantage:

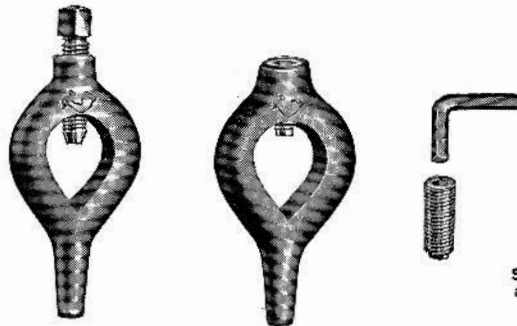
- One turn of handle sets or releases the vise.
- Can be instantly adjusted to any size within its capacity.
- Sides are machined true and at right angles with bottom.
- Will hold work true and solid, as sliding jaw draws down.



The handle provides a safe and convenient means of holding light work with ample leverage against the tendency to twist under strain of cut, and bottom of vise has projecting lugs at either end to facilitate clamping it to the machine when desirable.

No.	CAPACITY			DIMENSIONS OF LUGS		Length Overall Inches	Approx. Weight Lb.
	Width of Jaw Inches	Depth of Jaw Inches	Opens Inches	Height Inches	Width Inches		
1-V	2	$1\frac{5}{16}$	$1\frac{3}{4}$	$\frac{5}{16}$	$\frac{1}{4}$	6	4.5
2-V	$2\frac{3}{4}$	$1\frac{9}{16}$	$2\frac{1}{2}$	$\frac{7}{16}$	$\frac{3}{8}$	$7\frac{3}{4}$	8.5
3-V	$3\frac{1}{2}$	$1\frac{7}{16}$	3	$\frac{9}{16}$	$\frac{7}{16}$	$9\frac{3}{8}$	16.0

Straight Tail Lathe Dogs



With Square Head Screw With Safety Screw

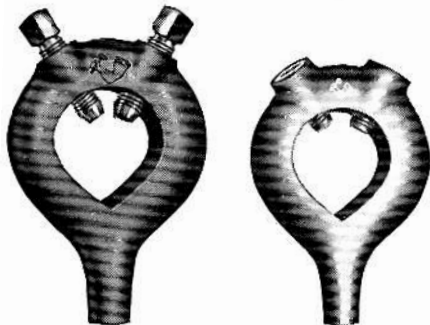
No.		Capacity Inches	APPROX. WT., LB. EXTRA SCREWS		Approx. Weight Lb. Complete
With Sq. lead Screw	*With Safety Screw		Square Head	Safety	
21	21-H	$\frac{3}{8}$	.03	.01	.25
22	22-H	$\frac{1}{2}$	.04	.02	.25
23	23-H	$\frac{3}{4}$	.07	.03	.50
24	24-H	1	.13	.06	.75
25	25-H	$1\frac{1}{4}$	.18	.07	1.25
26	26-H	$1\frac{1}{2}$	.18	.09	2.00
27	27-H	$1\frac{3}{4}$	.25	.12	2.50
28	28-H	2	.34	.16	3.25
29	29-H	$2\frac{1}{2}$	.43	.21	4.75
30	30-H	3	.43	.21	6.75
31	31-H	$3\frac{1}{2}$	.71	.31	8.00
32	32-H	4	.71	.31	11.00
33	33-H	5	1.00	.46	17.00

HEAVY DUTY LATHE DOGS

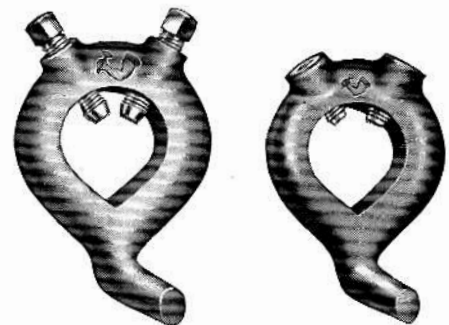
Straight Tail Lathe Dogs

Double Screw

Bent Tail Lathe Dogs



Safety Screw
and Wrench



With Square Head Screws With Safety Screws

No.		Capacity Inches	APPROX. WT., LB. EXTRA SCREWS		Approx. Weight Lb. Complete
With Sq. Head Screw	*With Safety Screw		Square Head	Safety	
132	132-H	4	.71	.31	15.0
133	133-H	5	1.00	.46	21.0
134	134-H	6	1.00	.46	29.0

*Wrenches furnished as extras. When ordering dogs with safety screws, specify wrenches wanted.

With Square Head Screws With Safety Screws

No.		Capacity Inches	APPROX. WT., LB. EXTRA SCREWS		Approx. Weight Lb. Complete
With Sq. Head Screws	*With Safety Screws		Square Head	Safety	
112	112-H	4	.71	.31	15.0
113	113-H	5	1.00	.46	21.0
114	114-H	6	1.00	.46	29.0
117	117-H	7	1.40	.65	39.0
118	118-H	8	2.00	1.00	50.0



ARMSTRONG "C" CLAMPS

Drop Forged Steel

ARMSTRONG Clamps meet the most exacting requirements of strength, stiffness and ease of use. Each clamp is drop forged from selected steels, then heat treated to increase the natural strength and toughness of the material. The design of each ARMSTRONG Clamp has been carefully considered to provide the user with the most efficient, easiest to use tool of its type. You will find ARMSTRONG Clamps—whatever the pattern—to be reliable, strong beyond need and capable of delivering long, trouble-free service.

COMPARE

ARMSTRONG'S patented ball-joint swivel pad to any other. The *lip is undercut* so that when the ball of the screw is inserted and lip is permanently forced down, a *solid steel wall* is formed inside pad cavity completely encircling the ball. This is why the pad can't come off even under hardest use.

COMPARE

the heavy walled hub of ARMSTRONG Clamps—see how the accurately machined screw has greater support and bearing to ensure long life and accurate clamping.

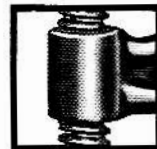
COMPARE

the generous sized carefully machined anvil of ARMSTRONG Clamps—note the accurate flat surface, how it provides greater gripping area for big work, yet permits pin-point clamping of small pieces.

COMPARE

ARMSTRONG'S superior rust resisting Parco Lubrite® finish* with finishes available on other makes of clamps. Parco Lubrite is better because it actually penetrates into the steel surfaces of ARMSTRONG clamp bodies, screws, handles and pads.

*Parco Lubrite is a registered trademark of the Parker Rust Proof Division of Hooker Chemical Corporation.



HEAVY DUTY PATTERN

For Maximum Holding Power

Heavy Design with Long Hub, Extra Large Screws



Drop forged from a select grade of steel, heat treated to insure maximum degree of strength. Alloy steel screws have hardened points. This pattern is universally recognized as the strongest "C" Clamp made.

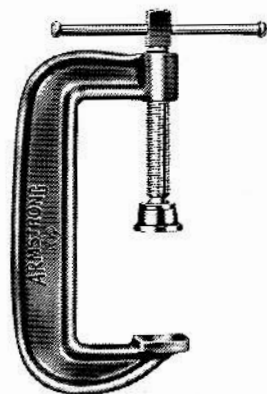
Individually boxed
Parco Lubrite finish

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Approx. Weight Lb.
	Max. Inches	Min. Inches			
0	3/4	0	3/4	3/8	.50
1	1 1/4	0	1 1/8	7/16	.75
1 1/2	1 3/4	0	1 1/2	9/16	1.75
2	2 1/4	7/8	1 5/8	1 1/16	3.50
3	3 1/4	1 1/4	2 1/4	1 3/16	6.00
4	4 1/2	1 3/4	2 3/4	1 3/16	10.00
5	5 1/2	2 1/2	3 1/4	1	13.50
6	6 1/2	3 1/4	3 1/2	1 1/8	18.50
8	8 1/2	4 1/2	3 3/4	1 1/4	25.00
10	10 1/2	6	3 7/8	1 1/4	30.00
12	12 1/2	7 1/2	4	1 1/4	33.00

Nos. 2 through 12 available with full length screws when specified—minimum capacity 0".

MEDIUM SERVICE PATTERN

For Maximum Utility



Well adapted to that wide field of work not requiring the extra weight and extreme stiffness which make our heavy clamp unequalled for the very hardest service.

The design and careful selection of material used combine the maximum strength and stiffness consistent with convenient weight.

Individually boxed
Parco Lubrite finish

Screw is heat treated. Equipped with sliding pin handle and patented ball-joint swivel pad that cannot come off.

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Approx. Weight Lb.
	Max. Inches	Min. Inches			
102	2	0	1 1/2	1/2	1.25
103	3	0	2	5/8	2.50
104	4	0	2 3/8	3/4	4.00
106	6	2	2 1/2	3/4	6.00
108	8	4	2 5/8	3/4	7.25
110	10	6	2 3/4	3/4	8.25
112	12	8	2 7/8	7/8	11.50
115	15	10	3 1/16	7/8	14.00
118	18	13	3 1/4	7/8	18.00

No. 106 through 118 available with full length screws when specified—minimum capacity, 0".

It is drop forged of select steel, and is heat treated to increased tensile strength.



ARMSTRONG "C" CLAMPS

Drop Forged Steel

EXTRA DEEP THROAT PATTERN

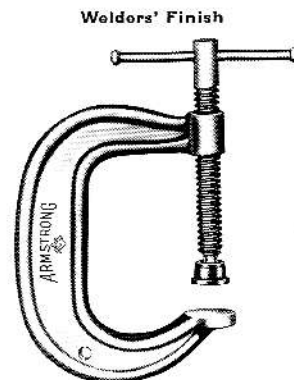
For Extra Clearance

Provides additional clearance beyond that offered by standard clamps. Widely used by body builders, woodworkers and allied trades. Screw is carefully machined from selected steel and heat treated. Equipped with sliding pin handle and the patented Ball-Joint swivel pad that cannot come off.

Also available in spatter resisting cadmium finish with ground wire hole for welding. Cadmium plated bodies, screws and pads prevent welding spatter adhesion.



Individually boxed
Parco Lubrite finish



Individually boxed
Cadmium plated

Extra Deep Throat No.	Spatter Resistant No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Approx. Weight Lb.
		Max. Inches	Min. Inches			
401½	401½-S	1½	0	1⅜	⅜	1.00
402	402-S	2	0	2	⅜	1.13
403	403-S	3	0	2⅜	½	1.50
404	404-S	4	0	2¾	⅝	2.25
406	406-S	6	0	3⅝	¾	3.75
408	408-S	8	0	4½	¾	5.50
410	410-S	10	3	5⅜	¾	8.25
412	412-S	12	4	5¾	⅞	12.50

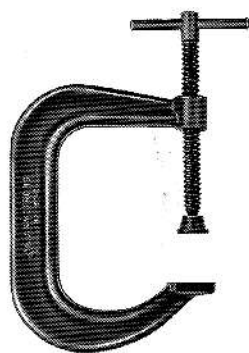
Nos. 410, 412, 410-S and 412-S available with full length screws when specified—minimum capacity, 0".

SQUARE THROAT PATTERN

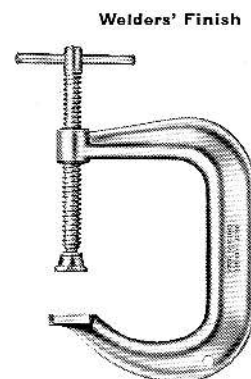
For Maximum Clearance

These have the greatest throat depth of any ARMSTRONG Clamp—and up to 89% more than conventional clamps—yet possess strength and stiffness for which all ARMSTRONG Clamps are noted. Accurately threaded screw is heat treated and fitted with sliding pin handle and patented Ball-Joint Swivel Pad.

Also available in spatter resisting cadmium finish with ground wire hole for welding. Plated bodies, screws and pads prevent welding spatter adhesion.



Individually boxed
Parco Lubrite finish



Individually boxed
Cadmium plated

Square Throat No.	Spatter Resistant No.	Capacity, In.		Depth: Center of Screw to Back, Inches	Diam. Screw, In.	Weight, Lbs.
		Max.	Min.			
1404	1404-S	4	0	4½	⅝	4.5
1406	1406-S	6	0	6½	¾	8.25
1408	1408-S	8	0	8½	¾	11.75

"C" CLAMPS FOR TOOL MAKERS

Drop Forged Steel

These clamps are drop forged from a selected steel and heat treated to increase the natural strength and toughness of the material.

The screws also are drop forged from a selected steel, are heat treated and are constructed with square necks to enable the user to set them up tightly by using a wrench.

Clamps with patented ball-joint swivel pad will be furnished, unless plain screw type is specified. Both types individually boxed and finished in Parco Lubrite.



With Plain Screw

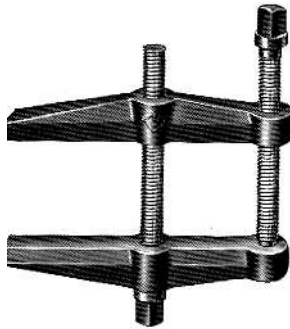
No.		CAPACITY		Depth Center of Screw to Back Inches	Diameter of Screw Inches	Approx. Weight Lb.
		Max. Inches	Min. Inches			
With Plain Screw	With Swivel Pad					
201-P	201	1	0	1⅞	⅝	.33
202-P	202	2	0	1⅞	⅝	.25
203-P	203	3	1	1⅞	⅝	.63
204-P	204	4	1¼	1⅞	⅞	1.00



With Swivel Screw

MACHINISTS' CLAMPS

Drop Forged Steel



ARMSTRONG Machinists' Clamps are drop forged from a selected grade steel, carefully machined and hardened. The under face of the center screw is convex fitting into a concave seat to allow for tilting.

Jaws are extra heavy will not bend or spring.

on a short bite and are faced true. The screws are hardened. Each clamp is boxed separately.

ARMSTRONG EYE BOLTS

PLAIN PATTERN

Drop Forged-Weldless
Blank or Threaded



Blank

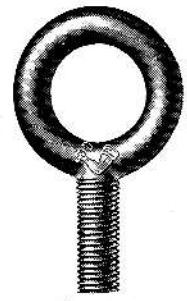
ARMSTRONG Eye Bolts are of strong, uniform design, drop forged from the best mild steel, heat treated to give increased tensile strength. All ARMSTRONG Eye Bolts are proof tested under quality control to fifty per cent beyond the "Safe Working Load" to assure proper service at listed capacity.

Threaded Eye Bolts of standard length available from stock with American National Coarse (U.S. Std.) threads. Eye Bolts with Whitworth Standard (B.S.W.) threads available on special order.

$\frac{1}{4}$ " to $\frac{3}{4}$ " bolts boxed 25 to the package; $\frac{7}{8}$ " to 1", 10 to the package.

When ordering, please state whether Blank or Threaded are desired; threaded will be supplied unless otherwise specified.

Longer than standard, shorter than standard, and undercut eye bolts available on special order.



Threaded

No.	SHANK			DIAMETER EYE		BLANK EYE BOLTS *SAFE WORKING LOAD IN TONS OF 2000 LB.		Approx. Weight Lb.
	Diameter, Blank Inches	Std. Length under Eye, Blank or Threaded Inches	Special Length Blank Available Up to	Inside Inches	Outside Inches	Safe Load	Approximate Breaking Strain	
1	1/4	1	...	3/4	1 3/16	.2	1.5	.05
2	5/16	1 1/8	...	7/8	1 1/16	.4	2.0	.08
3	3/8	1 1/4	12	1	1 21/32	.7	3.0	.20
4	7/16	1 3/8	12	1 1/32	1 27/32	1.0	4.0	.26
5	1/2	1 1/2	12	1 1/16	2 1/16	1.3	5.0	.40
6	9/16	1 5/8	12	1 9/32	2 9/32	1.5	6.0	.54
7	5/8	1 3/4	12	1 3/8	2 1/2	2.0	8.0	.72
8	3/4	2	12	1 1/2	2 13/16	3.0	12.0	1.10
9	7/8	2 1/4	12	1 11/16	3 1/4	3.5	16.0	1.80
10	1	2 1/2	12	1 13/16	3 9/16	4.0	20.0	2.40
11	1 1/8	2 3/4	12	2	4	5.0	23.0	3.50
12	1 1/4	3	12	2 3/16	4 7/16	7.5	33.0	4.60
14	1 1/2	3 1/2	18	2 1/2	5 3/16	9.0	42.0	7.50
15	1 3/4	3 3/4	18	2 7/8	6 1/16	11.0	53.0	12.50
16	2	4	18	3 1/4	6 7/8	13.0	68.0	18.00
17	2 1/2	5	12	4	8 9/16	16.0	85.0	31.00



All standard threaded eye bolts have shanks wrapped in cardboard sleeves to protect threads.



SHOULDER PATTERN

On standard length Threaded Eye Bolts of Shoulder Pattern the thread runs within $\frac{1}{8}$ to $\frac{3}{8}$ inch of shoulder, which is faced.

Threaded Eye Bolts will be supplied unless Blank is specified.

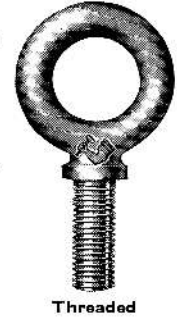
Special Eye Bolts, longer than standard, shorter than standard, and undercut eye bolts available on special order.



Blank

No.	SHANK			DIAMETER EYE		BLANK EYE BOLTS *SAFE WORKING LOAD IN TONS OF 2000 LB.		Approx. Weight Lb.
	Diam., Blank Inches	Std. Length under Shoulder, Blank or Threaded Inches	Special Length Blank Available Up to	Inside Inches	Outside Inches	Safe Load	Approximate Breaking Strain	
21	1/4	1	12	3/4	1 3/16	2	1.5	.05
22	5/16	1 1/8	12	7/8	1 1/16	4	2.0	.10
23	3/8	1 1/4	12	1	1 21/32	7	3.0	.20
24	7/16	1 3/8	12	1 1/32	1 27/32	1.0	4.0	.26
25	1/2	1 1/2	12	1 1/16	2 1/16	1.3	5.0	.40
26	9/16	1 5/8	12	1 9/32	2 9/32	1.5	6.0	.54
27	5/8	1 3/4	12	1 3/8	2 1/2	2.0	8.0	.72
28	3/4	2	12	1 1/2	2 13/16	3.0	12.0	1.10
29	7/8	2 1/4	12	1 11/16	3 1/4	3.5	16.0	1.80
30	1	2 1/2	18	1 13/16	3 9/16	4.0	20.0	2.40
31	1 1/8	2 3/4	18	2	4	5.0	23.0	3.50
32	1 1/4	3	18	2 3/16	4 7/16	7.5	33.0	4.60
34	1 1/2	3 1/2	18	2 1/2	5 3/16	9.0	42.0	7.50
35	1 3/4	3 3/4	18	2 7/8	6 1/16	11.0	53.0	12.50
36	2	4	18	3 1/4	6 7/8	13.0	68.0	18.00

*Proven safety factor should be used in figuring working load



Threaded

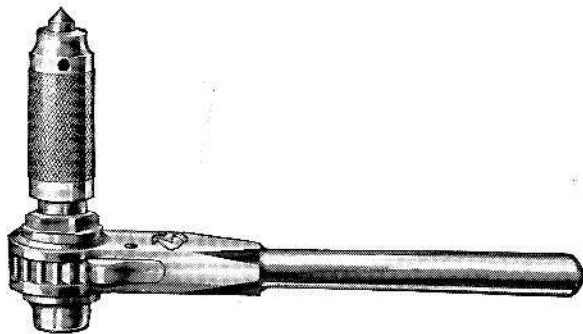


ARMSTRONG IMPROVED PACKER RATCHET DRILLS

ARMSTRONG Packer Ratchets embody the following advantages and improvements: all parts are steel, hardened; no small screws—spindle bears on a strong collar nut; extra strong teeth and pawl, large key and ample bearings; have shorter head with full length feed; the pawl drives on drill shank, not above it.

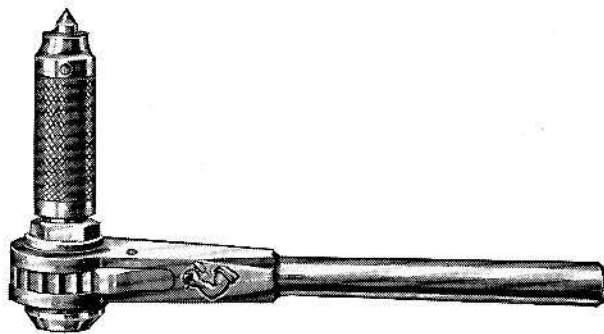
Each ratchet is boxed separately.

Sleeve Ratchets with Morse Taper Socket



No.	Length Inches	Size Drill Socket Morse No.	Takes Morse Taper Drill Inches	Length of Head Inches	Feed Inches	Approx. Weight Lb.
1-M	10	2	$\frac{37}{64}$ to $\frac{29}{32}$	6	$2\frac{1}{4}$	4.0
2-M	12	3	$\frac{39}{64}$ to $1\frac{1}{4}$	$6\frac{3}{4}$	$2\frac{1}{2}$	6.0
4-M	18	4	$1\frac{17}{64}$ to 2	9	$3\frac{1}{2}$	12.0

Sleeve Ratchets with Square Taper Socket



No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Approx. Weight Lb.
2	12	*No. 1 Square Taper	$6\frac{3}{4}$	$2\frac{1}{2}$	6.0
4	18	†No. 2 Square Taper	9	$3\frac{1}{2}$	12.0

ARMSTRONG "STANDARD" REVERSIBLE RATCHET DRILLS

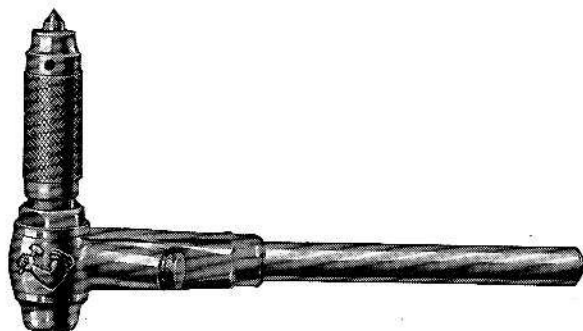
These Ratchet Drills meet the demand for a general service ratchet, which for design, workmanship and wear resisting qualities we believe to be unequalled.

Made of steel throughout and all parts are hardened with the exception of the handle which is steel, polished. Body is drop forged of selected steel.

The reversing "jigger" is well protected and conveniently located, while the end of the handle is finished round and smooth for the operator's hand.

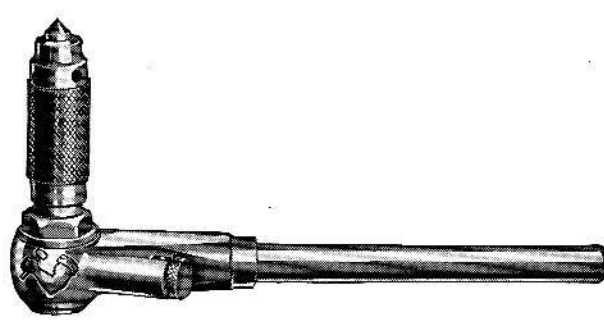
Each ratchet is packed separately in a cardboard box.

Sleeve Ratchets with Morse Taper Socket



No.	Length Inches	Size Drill Socket Morse No.	Takes Morse Taper Drills Inches	Length of Head Inches	Feed Inches	Approx. Weight Lb.
9-M	9	1	$\frac{1}{16}$ to $\frac{9}{16}$	5	2	1.75
12-M	12	2	$\frac{37}{64}$ to $\frac{29}{32}$	6	$2\frac{1}{4}$	4.00
15-M	15	3	$\frac{39}{64}$ to $1\frac{1}{4}$	$6\frac{3}{4}$	$2\frac{1}{2}$	6.25
22-M	22	4	$1\frac{17}{64}$ to 2	9	$3\frac{1}{2}$	13.00

Sleeve Ratchets with Square Taper Socket



No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Approx. Weight Lb.
9	9	Std. Bit Stock Taper	5	2	1.75
12	12	*No. 1 Square Taper	6	$2\frac{1}{4}$	4.00
22	22	†No. 2 Square Taper	9	$3\frac{1}{2}$	13.50

By means of sockets, these ratchets can be adapted to use of blacksmiths' drills with round shank.

By means of sleeves and sockets, standard ratchets with Morse Taper Sockets can be made to take smaller drills, and drills with square taper and blacksmiths' shank.

*Taking drill shank $\frac{3}{8}$ -inch square at small end and $\frac{5}{8}$ -inch square at large end.

†Taking drill shank $\frac{1}{2}$ -inch square at small end and $\frac{3}{4}$ -inch square at large end.



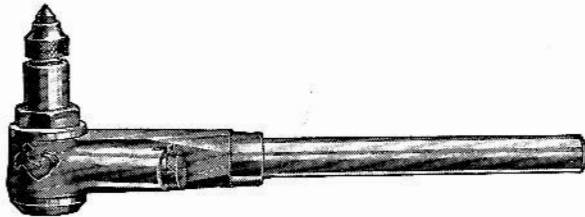
ARMSTRONG "STANDARD" REVERSIBLE RATCHET DRILLS

Made of steel throughout and all parts are hardened with the exception of the handle which is steel, polished. Body is drop forged of selected steel.

Reversing "jigger" is well protected and is conveniently located, while the end of the handle is finished round and smooth for the operator's hand.

Each ratchet is packed separately in a cardboard box.

Boiler Ratchets with Square Taper Socket



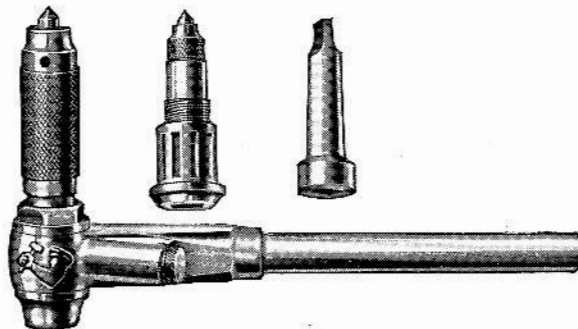
No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Approx. Weight Lb.
9-B	9	Std. Bit Stock Taper	3 1/4	1 1/8	1.5
12-B	12	*No. 1 Square Taper	4 3/8	1 1/2	3.5
22-B	22	†No. 2 Square Taper	6	2 1/4	11.5

By means of sockets, these ratchets can be adapted to use of blacksmiths' drills with round shank.

*Taking drill shank 3/8-inch square at small end and 5/8-inch square at large end.

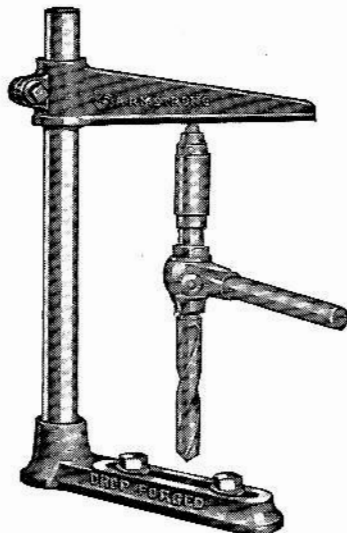
†Taking drill shank 1/2-inch square at small end and 3/4-inch square at large end.

Standard Ratchet Combination



This combination includes sleeve ratchet for Morse Taper Shank Drills, Square Taper Socket to fit same and a short spindle with feed screw by means of which the ratchet can be converted into a boiler ratchet or adapted to use square taper shank drills.

No.	Length Inches	Size of Drill Socket	Approx. Wt., Lb.
9-C	9	Standard Bit Stock and No. 1 Morse	2.50
12-C	12	No. 1 Square Taper and No. 2 Morse	5.25
15-C	15	No. 1 Square Taper and No. 3 Morse	8.00
22-C	22	No. 2 Square Taper and No. 4 Morse	17.00



ARMSTRONG DRILLING POST

For Use with Ratchet Drills

Drop Forged Steel

The foot and arm of ARMSTRONG Drilling Posts are drop forged of selected steel, carefully machined and heat treated.

The finished steel post is screwed into the foot and can be easily removed for packing in a tool kit.

Each drilling post is boxed separately.

No.	Height of Post Inches	Diameter of Post Inches	Arm Radius Inches	Approximate Weight Lb.
10	20	1 1/4	10	16.0
12	26	1 1/2	12	30.0

ARMSTRONG MACHINE HANDLE FORGINGS

BALL PATTERN



Drop Forged Steel

Unfinished, with Smooth
Planished Surface

CONE PATTERN



PATTERN NUMBER	Ball Pattern									Cone Pattern			
	00	0	1	2	3	4	5	6	7	11	13	15	16
Extreme Length..inches	2	2¼	2¾	3¼	3⅞	4½	5⅛	5⅞	6⅝	3½	4½	5½	6
Std. Lgth., Shank...in.	½	½	⅝	¾	⅞	1	1⅛	1¼	1½	½	¾	⅞	1⅛
Diameter Shank...in.	⅜	11/32	1⅜	15/32	1⅝	17/32	1⅞	1⅞	¾	⅜	7/16	½	9/16
Approx. Weight....lb.	.06	.09	.13	.22	.31	.37	.62	1.3	1.7	.22	.43	.75	1.1

ARMSTRONG BALANCE HANDLES

Drop Forged Steel

Unfinished are plain forgings without any hole in hub.

Finished are broached, ground, polished, heat treated, and finished in gray baked-on enamel.

The broached openings are made with corners slightly rounded to prevent breakage and slight clearance is provided.

Holes are regularly finished to standard sizes given below, but each forging admits of broaching to the maximum dimensions stated in table. Smaller openings than standard and special sizes can be broached to order. Handles can also be supplied with round holes in hub; details upon application.

No.	LENGTH			HUB		SQUARE HOLE, SIZE BROACHED		Ball Diam. Inches	Approx. Weight Lb.
	Ctr. Hub to Ctr. Handle, In.	Extreme Inches	Handle Above Arm Inches	Diam. Inches	Length Inches	Std. in Stock, In.	Max. to Order, In.		
512	1 $\frac{1}{4}$	3 $\frac{3}{16}$	1 $\frac{1}{16}$	$\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{2}$	$\frac{7}{8}$	.25
516	1 $\frac{5}{8}$	4	2 $\frac{1}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{1}{16}$	$\frac{1}{2}$	1 $\frac{1}{4}$	.56
*520	2	5	2 $\frac{5}{8}$	1	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	1 $\frac{1}{4}$	.75
*522	2 $\frac{1}{4}$	5 $\frac{1}{2}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$	1	$\frac{1}{2}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	1.10
*525	2 $\frac{1}{2}$	6	2 $\frac{13}{16}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$	$\frac{5}{8}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	1.30
529	2 $\frac{7}{8}$	7	3 $\frac{3}{16}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	$\frac{5}{8}$	1 $\frac{1}{16}$	1 $\frac{1}{2}$	1.60
434	3 $\frac{3}{8}$	8	3 $\frac{3}{16}$	1 $\frac{1}{2}$	$\frac{7}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{3}{4}$	1.30
439	3 $\frac{7}{8}$	9	3 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{1}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{3}{4}$	2.80

*Handle cone-shaped; see crank handle. †Hub is a sphere, flattened on top and bottom; full-size drawing on request.

ARMSTRONG CRANK HANDLES

Drop Forged Steel

Unfinished are plain forgings without hole in hub.

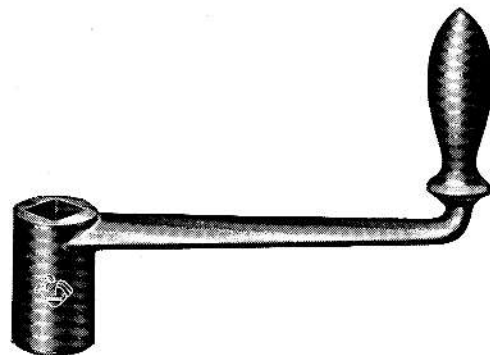
Broached have holes finished and hubs recessed or counter bored in free end but are otherwise plain forgings.

Finished are broached, counterbored in free end of hub, ground, polished, heat treated, and finished in gray baked-on enamel.

The broached openings are made with corners slightly rounded to prevent breakage and a slight clearance is provided.

Holes regularly finished to standard sizes given below, but each forging admits of broaching to maximum dimensions stated. Smaller openings than standard and special sizes, running by sixteenths from $\frac{1}{2}$ to 1 inch inclusive, and thence by eighths, can be broached to order at extra cost.

Hubs of broached, or finished can be cut to shorter lengths and handles will be offset (see small illustration) if desired, at additional charge.



No.	LENGTH		Handle Above Arm Inches	HUB		SQUARE HOLE, SIZE BROACHED		Approx. Weight Lb.
	Center to Center Inches	Extreme Inches		Diam. Inches	Length Inches	Std. in Stock, In.	Max. to Order, In.	
00	1 $\frac{3}{4}$	2 $\frac{5}{8}$	2 $\frac{3}{8}$	1	1 $\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	.38
0	2 $\frac{1}{4}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	1	1 $\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	.43
1	3	4	2 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	$\frac{9}{16}$	1 $\frac{1}{16}$	.78
2	3 $\frac{1}{2}$	4 $\frac{1}{2}$	2 $\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	.75
4	4	5 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{3}{8}$	$\frac{9}{16}$	1 $\frac{1}{16}$	1.
6	5	6 $\frac{1}{8}$	3 $\frac{3}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	$\frac{5}{8}$	1 $\frac{1}{16}$	1.1
8	6	7 $\frac{1}{8}$	3 $\frac{1}{2}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	1.2
10	7	8 $\frac{1}{4}$	3 $\frac{3}{4}$	1 $\frac{3}{8}$	2 $\frac{1}{16}$	$\frac{3}{4}$	$\frac{7}{8}$	1.6
12	8	9 $\frac{3}{8}$	3 $\frac{5}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{16}$	$\frac{7}{8}$	1	2.4
14	9 $\frac{1}{8}$	10 $\frac{1}{2}$	3 $\frac{3}{4}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{7}{8}$	1	2.5
16	10	11 $\frac{1}{2}$	4	1 $\frac{3}{4}$	3	1	1 $\frac{1}{8}$	3.2

ARMSTRONG CUTTING TOOLS

The ARMSTRONG Cutting Tool Line includes a broad selection of standard tool bits and blades for use in ARMSTRONG Tool Holders, boring bars, etc. Included in the line are ARMSTRONG High Speed Tool Bits and Blades; ARMALLOY® Cast Alloy Tool Bits and Blades; ARMIDE® Carbide Tool Bits, "Throw-away" inserts, and chip breakers.

THE TRADE MARK  OF QUALITY

ARMSTRONG HIGH SPEED GROUND TOOL BITS

ARMSTRONG High Speed Ground Tool Bits are made of a superior grade of high speed steel. Bits are accurately ground on all four sides.

Packaged for convenient handling with proper marking for quick identification.

SQUARES

ENDS BEVELLED 10°

TUNGSTEN MOLY HIGH SPEED STEEL



No.	Size Square Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2376	3/16	2	.02	2382	5/8	4 1/2	.50
2377	1/4	2 1/2	.03	2383	3/4	5	.88
2378	5/16	2 1/2	.06	2384	7/8	6	1.31
2379	3/8	3	.13	2385	1	7	1.81
2380	1/2	3 1/2	.19	2386	1 1/8	8	2.69
2381	1/2	4	.25	2387	1 1/4	9	4.13

COBALT HIGH SPEED STEEL



No.	Size Square, Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Square, Inches	Overall Length Inches	Approx. Weight Lb.
2388	3/16	2	.02	2394	5/8	4 1/2	.50
2389	1/4	2 1/2	.03	2395	3/4	5	.88
2390	5/16	2 1/2	.06	2396	7/8	6	1.31
2391	3/8	3	.13	2397	1	7	1.81
2392	1/2	3 1/2	.19	2398	1 1/8	8	2.69
2393	1/2	4	.25	2399	1 1/4	9	4.13

RECTANGULARS

SQUARE ENDS

TUNGSTEN MOLY HIGH SPEED STEEL



No.	Size Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2701	1/4 x 3/8	2 1/2	.06	2713	3/8 x 5/8	6	.47
2702	1/4 x 1/2	3	.13	2714	3/8 x 3/4	4	.32
2703	1/4 x 1/2	4	.17	2715	3/8 x 3/4	6	.50
2704	1/4 x 1/2	6	.22	2716	3/8 x 3/4	14	1.15
2705	1/4 x 1/2	10	.37	2717	1/2 x 3/4	6	.56
2706	5/16 x 1/2	3	.13	2718	1/2 x 3/4	4	.44
2707	5/16 x 1/2	3	.15	2719	1/2 x 3/4	6	.67
2708	3/8 x 1/2	3	.17	2720	1/2 x 1	8	1.18
2709	3/8 x 1/2	4	.22	2721	5/8 x 3/4	5	.69
2710	3/8 x 1/2	6	.32	2722	5/8 x 7/8	6	.94
2711	3/8 x 5/8	4	.27	2723	3/4 x 1	6	1.28
2712	3/8 x 5/8	5	.34	2724	7/8 x 1 1/8	7	1.30

COBALT HIGH SPEED STEEL



No.	Size Inches	Overall Length Inches	Approx. Weight Lb.	No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2731	1/4 x 3/8	2 1/2	.06	2743	3/8 x 5/8	6	.47
2732	1/4 x 1/2	3	.13	2744	3/8 x 3/4	4	.32
2733	1/4 x 1/2	4	.17	2745	3/8 x 3/4	6	.50
2734	1/4 x 1/2	6	.22	2746	3/8 x 3/4	14	1.14
2735	1/4 x 1/2	10	.37	2747	1/2 x 3/4	6	.56
2736	5/16 x 1/2	3	.13	2748	1/2 x 3/4	4	.44
2737	5/16 x 1/2	3	.15	2749	1/2 x 3/4	6	.67
2738	3/8 x 1/2	3	.15	2750	1/2 x 1	8	1.18
2739	3/8 x 1/2	4	.22	2751	5/8 x 3/4	5	.69
2740	3/8 x 1/2	6	.32	2752	5/8 x 7/8	6	.94
2741	3/8 x 5/8	4	.27	2753	3/4 x 1	6	1.28
2742	3/8 x 5/8	5	.34	2754	7/8 x 1 1/8	7	1.30



ARMSTRONG HIGH SPEED GROUND CUT-OFF BLADES

TUNGSTEN MOLY HIGH SPEED STEEL

ARMSTRONG High Speed Ground Cut-off Blades are made of a superior grade of high speed steel. They come bevelled, ready for use in ARMSTRONG Cutting-off Tools and with sides, top and bottom edges ground.



*For Straight and Right Hand Tools		†For Left Hand Tools		Size Inches	Overall Length Inches	Approx. Weight Lb.
No.	For Tool Nos.	No.	For Tool Nos.			
2410	19, 29-R	2420	29-L	$\frac{3}{32} \times \frac{1}{2}$	4 $\frac{1}{2}$	.06
2411	20, 30-R	2421	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2412	21, 31-R	2422	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2413	22, 32-R	2423	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2414	23, 33-R	2424	33-L	$\frac{3}{16} \times 1$	6 $\frac{1}{2}$	.31
2415	24, 34-R	2425	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2416	25, 35-R	2426	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2417	26, 36-R	2427	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in Straight and Right-Hand Spring Cutting-off Tools.

†Also for use in Left-Hand Spring Cutting-off Tools.

COBALT HIGH SPEED STEEL

ARMSTRONG Cobalt High Speed Ground Cut-off Blades are made of a superior grade of Cobalt High Speed Steel. They come bevelled, ready for use in ARMSTRONG Cutting-off Tools with sides, top and bottom edges ground.



*For Straight and Right Hand Tools		†For Left Hand Tools		Size Inches	Overall Length Inches	Approx. Weight Lb.
No.	For Tool Nos.	No.	For Tool Nos.			
2540	19, 29-R	2550	29-L	$\frac{3}{32} \times \frac{1}{2}$	4 $\frac{1}{2}$	.06
2541	20, 30-R	2551	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.12
2542	21, 31-R	2552	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2543	22, 32-R	2553	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2544	23, 33-R	2554	33-L	$\frac{3}{16} \times 1$	6 $\frac{1}{2}$	.31
2545	24, 34-R	2555	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2546	25, 35-R	2556	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2547	26, 36-R	2557	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in Straight and Right-Hand Spring Cutting-off tools.

†Also for use in Left-Hand Spring Cutting-off tools.

ARMSTRONG UNGROUND BLADES

High Speed Steel

Ready for Use in ARMSTRONG Cutting-Off and Side Tools



ARMSTRONG Unground Blades are made of a superior grade of high speed steel, are heat treated, hardened and ready for use in ARMSTRONG Cutting-off and Side Tools. Approximate sizes of blades are shown. Actual sizes are somewhat less. When ordering, please specify catalog number.

Cut-Off Blades

Straight and Right-Hand		Left-Hand		Size Inches	Length Overall Inches	Approx. Weight Lb.
No.	*For Tool Nos.	No.	†For Tool Nos.			
2401	19, 29-R	2451	29-L	$\frac{3}{32} \times \frac{1}{2}$	4 $\frac{1}{2}$	.06
2402	20, 30-R	2452	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2403	21, 31-R	2453	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2404	22, 32-R	2454	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2405	23, 33-R	2455	33-L	$\frac{3}{16} \times 1$	6 $\frac{1}{2}$	.31
2406	24, 34-R	2456	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2407	25, 35-R	2457	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2408	26, 36-R	2458	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in ARMSTRONG Straight and Right-Hand Spring Cutting-off Tools.

†Also for use in ARMSTRONG Left-Hand Spring Cutting-off Tools.

Side Tool Blades

Right-Hand		Left-Hand		Size Inches	Length Overall Inches	Approx. Weight Lb.
No.	For Tool Nos.	No.	For Tool Nos.			
2621	69-R, 79-R	2511	69-L, 79-L	$\frac{1}{8} \times \frac{1}{2}$	4 $\frac{1}{2}$	.06
2622	70-R, 80-R	2512	70-L, 80-L	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2623	71-R, 81-R	2513	71-L, 81-L	$\frac{3}{16} \times \frac{3}{4}$	6	.19
2624	72-R, 82-R	2514	72-L, 82-L	$\frac{1}{4} \times \frac{7}{8}$	7	.31
2625	73-R, 83-R	2515	73-L, 83-L	$\frac{3}{16} \times 1$	8	.50
2626	74-R, 84-R	2516	74-L, 84-L	$\frac{3}{16} \times 1\frac{1}{4}$	9	.75
2627	75-R, 85-R	2517	75-L, 85-L	$\frac{1}{4} \times 1\frac{1}{4}$	10	1.13
2628	76-R, 86-R	2518	76-L, 86-L	$\frac{1}{4} \times 1\frac{3}{8}$	11	1.63



ARMSTRONG UNGROUND TOOL BITS

Require Grinding Only to Make Them Ready for Use in ARMSTRONG Tool Holders

ARMSTRONG Unground Tool Bits are made of a superior grade of high speed steel. Carefully heat treated, hardened, tempered and tested. When ordering, please specify catalog number.

For Turning Tools



No.	Size Square, Inches	Overall Length, Inches	Approx. Weight, Lb.
2301	$\frac{3}{16}$	2	.02
2302	$\frac{1}{4}$	$2\frac{1}{2}$	.03
2303	$\frac{5}{16}$	$2\frac{1}{2}$	.06
2304	$\frac{3}{8}$	3	.13
2305	$\frac{7}{16}$	$3\frac{1}{2}$	.19
2306	$\frac{1}{2}$	4	.25
2307	$\frac{5}{8}$	$4\frac{1}{2}$	.50
2308	$\frac{3}{4}$	5	.88
2309	$\frac{7}{8}$	6	1.31
2310	1	7	1.81
2311	$1\frac{1}{8}$	8	2.69
2312	$1\frac{1}{4}$	9	4.13

For Planer, Slotter and Gang Planer Tools



No.	Size Flats, In.	Overall Length, In.	Approx. Wt., Lb.
2351	$\frac{1}{4} \times \frac{3}{8}$	$2\frac{1}{2}$	.11
2352	$\frac{5}{16} \times \frac{7}{16}$	3	.15
2353	$\frac{3}{8} \times \frac{1}{2}$	$3\frac{1}{2}$	.19
2354	$\frac{1}{2} \times \frac{3}{4}$	$4\frac{1}{4}$	.50
2355	$\frac{5}{8} \times \frac{7}{8}$	5	.75
2356	$\frac{3}{4} \times 1$	6	1.25
2357	$\frac{7}{8} \times 1\frac{1}{8}$	7	2.00

For Boring Tools



No.	Size Square, Inches	Overall Length, Inches	Approx. Weight, Lb.
2322	$\frac{3}{16}$	$1\frac{1}{4}$	.01
2324	$\frac{1}{4}$	$1\frac{3}{4}$	.02
2326	$\frac{5}{16}$	$2\frac{1}{4}$	.05
2328	$\frac{3}{8}$	$2\frac{3}{8}$	.11
2330	$\frac{7}{16}$	$2\frac{7}{8}$	.15
2332	$\frac{1}{2}$	$3\frac{1}{4}$	.20
2334	$\frac{5}{8}$	4	.40

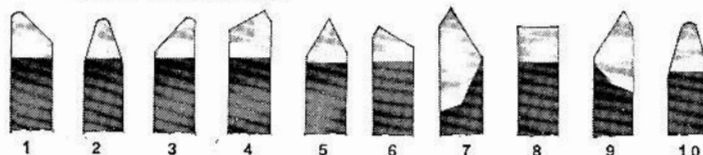
ARMSTRONG GROUND TOOL BITS

Ground to Form—High Speed Steel
For Use in ARMSTRONG Tool Holders

Armstrong Finished Form Cutters are made of a select grade of steel.

They are heat treated, hardened, ground to form and ready for use.

Specify by catalog number.



Size Square, Inches	Overall Length Inches	CATALOG NO.										*Boxed Set (1 of Each Shape)	Boxed Set Approx. Wt., Lb.
		Shape 1 Left- Hand Turning Tool	Shape 2 Round Nose Turning Tool	Shape 3 Right- Hand Turning Tool	Shape 4 Left- Hand Corner Tool	Shape 5 Thread- ing Tool	Shape 6 Right- Hand Corner Tool	Shape 7 Left- Hand Side Tool	Shape 8 Square Nose Tool	Shape 9 Right- Hand Side Tool	Shape 10 Brass Tool		
1/4	2 1/2	2202	2212	2222	2232	2242	2252	2262	2272	2282	2292	0415	.35
5/16	2 1/2	2203	2213	2223	2233	2243	2253	2263	2273	2283	2293	0405	.60
3/8	3	2204	2214	2224	2234	2244	2254	2264	2274	2284	2294	0406	1.00
7/16	3 1/2	2205	2215	2225	2235	2245	2255	2265	2275	2285	2295	0407	1.75
1/2	4	2206	2216	2226	2236	2246	2256	2266	2276	2286	2296	0408	2.15

*Set No. 01365, consisting of 1 each of shapes 1, 2, 3, 5, 6, 10, $\frac{1}{4}$ inch square bits in a box, also available.

ARMSTRONG SPECIAL HIGH SPEED STEEL†

In 3-Foot Bars

Ready for Use, No Treatment Required

SQUARES
For Use in ARMSTRONG Turning and Boring Tools

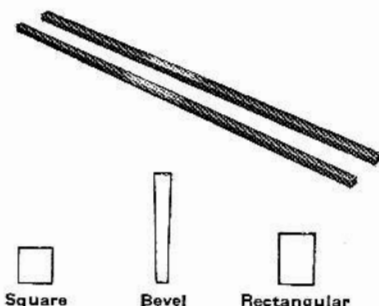
No.	Size Inches	Wt., Lb.
2481	$\frac{1}{4}$	.63
2482	$\frac{5}{16}$	1.00
2483	$\frac{3}{8}$	1.56
2484	$\frac{7}{16}$	2.04
2485	$\frac{1}{2}$	2.52
2490	$\frac{5}{8}$	4.06
2486	$\frac{3}{4}$	6.19
2487	$\frac{7}{8}$	8.00
2488	1	10.44
2489	$1\frac{1}{8}$	13.94

BEVELS
For Use in ARMSTRONG Cutting-Off Tools

No.	Size Inches	Wt., Lb.
2681	$\frac{3}{32} \times \frac{1}{2}$	.50
2682	$\frac{3}{32} \times \frac{5}{8}$	.50
2683	$\frac{1}{8} \times \frac{3}{4}$	.94
2684	$\frac{1}{8} \times \frac{7}{8}$	1.00
2685	$\frac{3}{16} \times 1$	1.44
2686	$\frac{3}{16} \times 1\frac{1}{8}$	2.56
2687	$\frac{1}{4} \times 1\frac{1}{4}$	2.88
2688	$\frac{1}{4} \times 1\frac{3}{8}$	3.00

RECTANGULARS
For Use in ARMSTRONG Planer and Slotter Tools

No.	Size Inches	Wt., Lb.
2501	$\frac{1}{4} \times \frac{3}{8}$	1.00
2502	$\frac{5}{16} \times \frac{7}{16}$	1.44
2503	$\frac{3}{8} \times \frac{1}{2}$	2.50
2504	$\frac{1}{2} \times \frac{3}{4}$	4.00
2505	$\frac{5}{8} \times \frac{7}{8}$	5.75
2506	$\frac{3}{4} \times 1$	8.19
2507	$\frac{7}{8} \times 1\frac{1}{8}$	10.75



†Will be discontinued when present stock is depleted.



ARMSTRONG ARMIDE® CARBIDE TIPPED CUTTERS

For Use in ARMSTRONG Carbide Tool Holders

ARMIDE is a sintered-carbide cutting material which approaches the diamond in hardness; machines the hardest and toughest steels and sand-filled castings with ease, as well as hard rubber, plastics and even glass. Cutter bits tipped with this material will hold their cutting edge much longer than the finest tool steels and will machine from 10 to 100 times as many pieces between grindings. Cutters are designed for use in ARMSTRONG Carbide Tool Holders. Available in seven standard styles and in four grades:

Grade 78—for average steel cutting.

Grade 883—for cast iron and non-ferrous work.

Grade 78B—for steel roughing and general purpose.

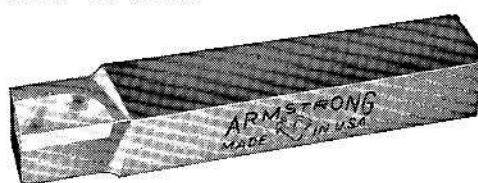
Grade 370—for heavy roughing of steel.

Order ARMSTRONG ARMIDE Carbide Tipped Cutters by number.

SQUARE SHANK TURNING CUTTERS



Style AL, Left-Hand



Style AR, Right-Hand

Style AL Left-Hand				SHANK SIZE		TIP SIZE			Style AR—Right-Hand			
No.				Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	No.			
Grade 78	Grade 78B	Grade 883	Grade 370						Grade 78	Grade 78B	Grade 883	Grade 370
AL 4-78	AL 4-78B	AL 4-883	AL 4-370	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	AR 4-78	AR 4-78B	AR 4-883	AR 4-370
AL 5-78	AL 5-78B	AL 5-883	AL 5-370	$\frac{5}{16}$	$2\frac{1}{4}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	AR 5-78	AR 5-78B	AR 5-883	AR 5-370
AL 6-78	AL 6-78B	AL 6-883	AL 6-370	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	AR 6-78	AR 6-78B	AR 6-883	AR 6-370
AL 7-78	AL 7-78B	AL 7-883	AL 7-370	$\frac{7}{16}$	3	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	AR 7-78	AR 7-78B	AR 7-883	AR 7-370
AL 8-78	AL 8-78B	AL 8-883	AL 8-370	$\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	AR 8-78	AR 8-78B	AR 8-883	AR 8-370
AL10-78	AL10-78B	AL10-883	AL10-370	$\frac{5}{8}$	4	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{3}{4}$	AR10-78	AR10-78B	AR10-883	AR10-370
AL12-78	AL12-78B	AL12-883	AL12-370	$\frac{3}{4}$	$4\frac{1}{2}$	$\frac{3}{16}$	$\frac{7}{16}$	$1\frac{13}{16}$	AR12-78	AR12-78B	AR12-883	AR12-370

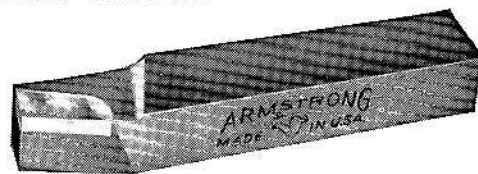
HEAVY DUTY TURNING CUTTERS

Left-Hand		SHANK SIZE			TIP SIZE			Right-Hand	
No.		Height, Inches	Width, Inches	Length, Inches	Thickness, Inches	Width, Inches	Length, Inches	No.	
Grade 78	Grade 883							Grade 78	Grade 883
HM71-78	HM71-883	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	HM41-78	HM41-883
HM72-78	HM72-883	$\frac{7}{16}$	$\frac{5}{16}$	$2\frac{1}{4}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	HM42-78	HM42-883
HM73-78	HM73-883	$\frac{1}{2}$	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	HM43-78	HM43-883
HM74-78	HM74-883	$\frac{9}{16}$	$\frac{7}{16}$	3	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	HM44-78	HM44-883
HM75-78	HM75-883	$\frac{3}{4}$	$\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	HM45-78	HM45-883
HM77-78	HM77-883	$\frac{7}{8}$	$\frac{5}{8}$	4	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{3}{4}$	HM47-78	HM47-883
HM78-78	HM78-883	1	$\frac{3}{4}$	$4\frac{1}{2}$	$\frac{3}{16}$	$\frac{7}{16}$	$1\frac{13}{16}$	HM48-78	HM48-883

SQUARE SHANK TURNING CUTTERS



Style BL, Left-Hand



Style BR, Right-Hand

Style BL—Left-Hand				SHANK SIZE		TIP SIZE			Style BR Right-Hand			
No.				Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	No.			
Grade 78	Grade 78B	Grade 883	Grade 370						Grade 78	Grade 78B	Grade 883	Grade 370
BL 4-78	BL 4-78B	BL 4-883	BL 4-370	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	BR 4-78	BR 4-78B	BR 4-883	BR 4-370
BL 5-78	BL 5-78B	BL 5-883	BL 5-370	$\frac{5}{16}$	$2\frac{1}{4}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	BR 5-78	BR 5-78B	BR 5-883	BR 5-370
BL 6-78	BL 6-78B	BL 6-883	BL 6-370	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	BR 6-78	BR 6-78B	BR 6-883	BR 6-370
BL 7-78	BL 7-78B	BL 7-883	BL 7-370	$\frac{7}{16}$	3	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	BR 7-78	BR 7-78B	BR 7-883	BR 7-370
BL 8-78	BL 8-78B	BL 8-883	BL 8-370	$\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	BR 8-78	BR 8-78B	BR 8-883	BR 8-370
BL10-78	BL10-78B	BL10-883	BL10-370	$\frac{5}{8}$	4	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{3}{4}$	BR10-78	BR10-78B	BR10-883	BR10-370
BL12-78	BL12-78B	BL12-883	BL12-370	$\frac{3}{4}$	$4\frac{1}{2}$	$\frac{3}{16}$	$\frac{7}{16}$	$1\frac{13}{16}$	BR12-78	BR12-78B	BR12-883	BR12-370

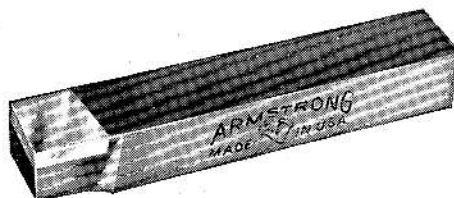
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ARMSTRONG ARMIDE CARBIDE TIPPED CUTTERS

For Use in ARMSTRONG Carbide Tool Holders

SQUARE SHANK CUTTERS



Style C, Square Nose



Style D, 80°

Style C—Square Nose				SHANK SIZE		TIP SIZE				Style D—80°			
No.				Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	Radius, Inches	No.			
Grade 78	Grade 78B	Grade 883	Grade 370							Grade 78	Grade 78B	Grade 883	Grade 370
C 4-78	C 4-78B	C 4-883	C 4-370	1/4	1 1/2	1/16	1/4	5/16	1/32	D 4-78	D 4-78B	D 4-883	D 4-370
C 5-78	C 5-78B	C 5-883	C 5-370	5/16	2 1/4	3/32	3/16	3/8	1/32	D 5-78	D 5-78B	D 5-883	D 5-370
C 6-78	C 6-78B	C 6-883	C 6-370	3/8	2 1/2	3/32	3/8	*1 1/2	1/16	D 6-78	D 6-78B	D 6-883	D 6-370
C 7-78	C 7-78B	C 7-883	C 7-370	7/16	3	3/32	7/16	1/2	1/16	D 7-78	D 7-78B	D 7-883	D 7-370
C 8-78	C 8-78B	C 8-883	C 8-370	1/2	3 1/2	1/8	1/2	1 1/16	1/16	D 8-78	D 8-78B	D 8-883	D 8-370
C10-78	C10-78B	C10-883	C10-370	5/8	4	5/32	5/8	5/8	3/32	D10-78	D10-78B	D10-883	D10-370
C12-78	C12-78B	C12-883	C12-370	3/4	4 1/2	3/16	3/4	3/4	3/32	D12-78	D12-78B	D12-883	D12-370

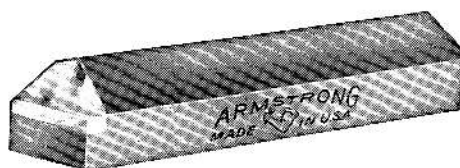
*C6-78, C6-78B, C6-883 and C6-370—3/8 inch.

†C8-78, C8-78B, C8-883 and C8-370—1/2 inch.

RECTANGULAR SHANK HEAVY DUTY CUTTERS

Square Nose		SHANK SIZE			TIP SIZE				80°	
No.		Height, Inches	Width, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	Radius, Inches	No.	
Grade 78	Grade 883								Grade 78	Grade 883
HM11-78	HM11-883	3/8	1/4	1 1/2	1/16	1/4	5/16	1/32	HM121-78	HM121-883
HM12-78	HM12-883	7/16	5/16	2 1/4	3/32	5/16	3/8	1/32	HM122-78	HM122-883
HM13-78	HM13-883	1/2	3/8	2 1/2	5/32	3/8	1/2	1/16	HM123-78	HM123-883
HM14-78	HM14-883	9/16	7/16	3	3/32	7/16	1 1/2	1/16	HM124-78	HM124-883
HM15-78	HM15-883	3/4	1 1/2	3 1/2	1/8	1/2	9/16	1/16	HM125-78	HM125-883
HM17-78	HM17-883	7/8	5/8	4	5/32	5/8	5/8	3/32	HM127-78	HM127-883
HM18-78	HM18-883	1	3/4	4 1/2	3/16	3/4	3/4	3/32	HM128-78	HM128-883

SQUARE SHANK THREADING CUTTERS



Style E, 60°

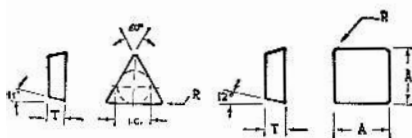
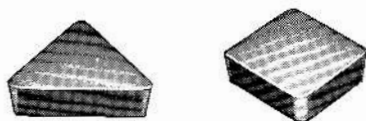
Style E 60°		SHANK SIZE		TIP SIZE		
No.	No.	Square, Inches	Length, Inches	Thickness, Inches	Width, Inches	Length, Inches
Grade 78B	Grade 350					
E 4-78B	E 4-350	1/4	1 1/2	1/16	1/4	5/16
E 5-78B	E 5-350	5/16	2 1/4	3/32	5/16	3/8
E 6-78B	E 6-350	3/8	2 1/2	3/32	3/8	1 1/2
E 7-78B	E 7-350	7/16	3	3/32	7/16	1 1/2
E 8-78B	E 8-350	1/2	3 1/2	1/8	1/2	9/16
E10-78B	E10-350	5/8	4	5/32	5/8	5/8
E12-78B	E12-350	3/4	4 1/2	3/16	3/4	3/4

ARMIDE should be held parallel to the tool holder shank. Use ARMSTRONG Carbide Tool Holders ONLY—Specially designed for these cutters.

For Carbide Tool Holders especially designed for use with ARMIDE Cutters, see page 3

ARMSTRONG ARMIDE "THROW AWAY" CARBIDE INSERTS

POSITIVE RAKE INSERTS



ARMIDE Inserts for use in ARMSTRONG Carbide Insert Tool Holders are furnished in two finishes and three grades of carbide. Finishes available are:

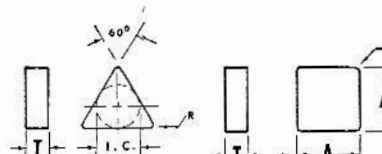
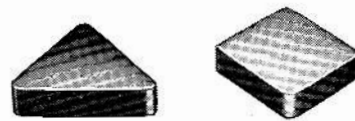
Utility with top, bottom and corner radii ground.

Precision—with all surfaces ground, including radii.

Inserts available in carbide grades:
Grade 350: for light roughing and general finishing of steel.

Grade 370: for heavy roughing of steel.
Grade 883: for general purpose roughing and finishing; for cast iron, brass, steels.

NEGATIVE RAKE INSERTS



When ordering inserts, specify No., finish (Utility or Precision) and grade required. Standard package 10.

Insert Catalog No.	Insert Dimensions			Finish*	For Tool Numbers
	L.C.	T	R		
(Triangular)					
TBC122P2	3/8	1/8	1/32	P	TR12P, TL12P, TR43P, TL43P
TBC163P3	1/2	3/16	3/64	P	TR16P, TL16P, TR54P, TL54P, TR65P, TL65P, TR75P, TL75P, TR85P, TL85P
(Square)	A	T	R		
SQC162P2	1/2	1/8	1/32	P	SR12P, SL12P, SR43P, SL43P
SQC243P4	3/4	3/16	1/16	P	SR16P, SL16P, SR54P, SL54P, SR65P, SL65P, SR75P, SL75P, SR85P, SL85P

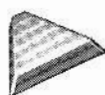
Insert Catalog No.	Insert Dimensions			Finish*	For Tool Numbers
	L.C.	T	R		
(Triangular)					
TB122U3	3/8	1/8	3/64	U	TR12, TL12, TR43, TL43
TB122P3	3/8	1/8	3/64	P	TR12, TL12, TR43, TL43
TB163U4	1/2	3/16	1/16	U	TR16, TL16, TR54, TL54, TR65, TL65, TR75, TL75, TR85, TL85
TB163P4	1/2	3/16	1/16	P	TR16, TL16, TR54, TL54, TR65, TL65, TR75, TL75, TR85, TL85
(Square)	A	T	R		
SQ162U2	1/2	1/8	1/32	U	SR12, SL12, SR43, SL43
SQ162P2	1/2	1/8	1/32	P	SR12, SL12, SR43, SL43
SQ243U4	3/4	3/16	1/16	U	SR16, SL16, SR54, SL54, SR65, SL65, SR75, SL75, SR85, SL85
SQ243P4	3/4	3/16	1/16	P	SR16, SL16, SR54, SL54, SR65, SL65, SR75, SL75, SR85, SL85

*P—Precision, U—Utility

CHIP BREAKERS

Solid Carbide

Specify for Heavy or Light Cut



Triangular

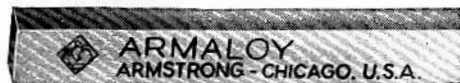


Square

Heavy Cut No.	Light Cut No.	For Tool Holder Nos.
CTB12	LCTB12	TR12, TL12, TR43, TL43
CTB16	LCTB16	TR16, TL16, TR54, TL54, TR65, TL65, TR75, TL75

Heavy Cut No.	Light Cut No.	For Tool Holder Nos.
CSQ16	LCSQ16	SR12, SL12, SR43, SL43
CSQ24	LCSQ24	SR16, SL16, SR54, SL54, SR65, SL65, SR75, SL75

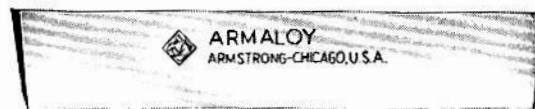
ARMALLOY TOOL BITS



ARMALLOY Tool Bits come ready to grind to cutting shape. Each is a finished tool surface ground to exact size to fit the corresponding ARMSTRONG "C-A" Tool Holder. Specify catalog number.

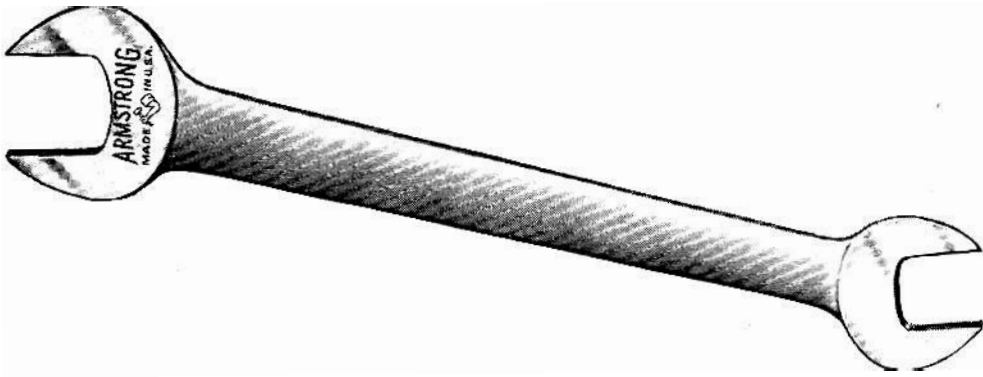
No.	Size Square Inches	Overall Length Inches	For Tool Holder Nos.	Approx. Weight Lb.
2641	$\frac{1}{4}$	$2\frac{1}{8}$	XX-0-S, XX-0-L, XX-0-R	.03
2642	$\frac{5}{16}$	$2\frac{1}{2}$	XX-1-S, XX-1-L, XX-1-R	.11
2643	$\frac{3}{8}$	3	XX-2-S, XX-2-L, XX-2-R	.13
2644	$\frac{7}{16}$	$3\frac{1}{2}$	XX-3-S, XX-3-L, XX-3-R	.18
2645	$\frac{1}{2}$	4	XX-4-S, XX-4-L, XX-4-R	.31
2646	$\frac{5}{8}$	$4\frac{1}{2}$	XX-5-S, XX-5-L, XX-5-R	.56
2647	$\frac{3}{4}$	5	.....	.88

ARMALLOY CUT-OFF BLADES



ARMALLOY Cut-off blades are designed for use in standard ARMSTRONG cutting-off tools. They come ground to shape and are of "beveled" design tapered on both sides for clearance. Sides, top and bottom edges ground. Order by number.

No.	Size Inches	Overall Length Inches	For Cut-Off Tool Nos.	Approx. Weight l.b.
2669	$\frac{1}{8} \times \frac{3}{4}$	6	21, 31-L, 31-R	.25
2670	$\frac{1}{8} \times \frac{7}{8}$	6	22, 32-L, 32-R	.33
2671	$\frac{3}{16} \times 1$	6	23, 33-L, 33-R	.43
2672	$\frac{3}{16} \times 1\frac{1}{8}$	6	24, 34-L, 34-R	.48
2673	$\frac{1}{4} \times 1\frac{1}{4}$	6	25, 35-L, 35-R	.66



ARMSTRONG HI-TEN® and ARMSTRONG ARMALLOY® Wrenches are preferred by discriminating buyers and wrench users in every industry.

HI-TEN Wrenches are drop forged from selected high carbon steel which has been shown to possess the requisite qualities that insure stiffness and tensile strength. They are attractively finished in gray baked-on enamel. *The heads are ground bright and plainly stamped with catalog number and nominal size of opening.

ARMALLOY Super Quality Open End and Box Wrenches combine maximum strength with minimum weight. This combination results in wrenches whose strength is based not on bulk but upon excellence of design and material. These wrenches are drop forged from selected alloy steel and are attractively finished in chrome plate. *The heads are buffed bright and plainly stamped with catalog number.

HI-TEN and ARMALLOY Open End Wrenches are accurately milled, smoothly burnished, carefully hardened and tempered. All openings are milled slightly larger than nominal sizes listed to allow for proper clearance.

HI-TEN and ARMALLOY Box or Socket Wrenches are broached slightly larger than nominal sizes listed to allow for proper clearance.

WRENCHES WITH SPECIAL OPENINGS—In any size for which we have the necessary tools, wrenches as listed can be furnished with special openings.

SPECIAL PATTERN WRENCHES—In addition to the standard patterns listed, we are also prepared to furnish practically any special wrench in reasonable quantities. Send us your specifications for a quotation.

When ordering wrenches be careful to specify catalog numbers and nominal size of openings as listed.

*Not all wrenches in HI-TEN and ARMALLOY series are finished as described above. For individual wrench descriptions refer to group headings.



ARMSTRONG WRENCHES

ENGINEERS' PATTERN

15° Angle, Single Head—Drop Forged

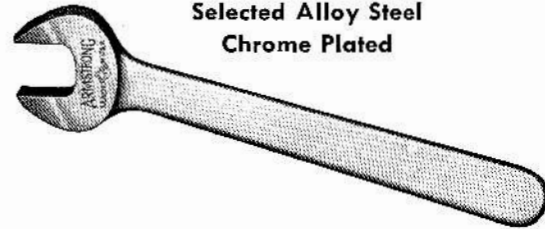
HI-TEN

Selected High Carbon Steel
Gray Enameled



ARMALLOY

Selected Alloy Steel
Chrome Plated



These wrenches are accurately milled, smoothly burnished, carefully hardened and tempered. All openings are slightly larger than nominal sizes listed to allow for proper clearance. In stock with openings as listed below.

Beginning with No. 11 all wrenches have tapered handles.

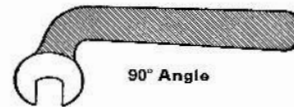
The following wrenches have hole of the diameter given below, in end of handle.

No.	17	17A	18	18A	19	19A	19B	19C	20	20A	20B	21A	21B	21C	22A	22B
Hole Inches	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1	1	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$

These wrenches can be furnished bent to 45 or 90° angles on special order.



45° Angle



90° Angle

Hi-Ten Wrenches

No.	Nominal Opening Inches	Approx. Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	Approx. Weight Lb.
S-000	$\frac{3}{16}$	$3\frac{1}{2}$	.03	707	$1\frac{1}{8}$	$10\frac{1}{2}$	1.40	16-B	$2\frac{13}{16}$	27	13.60
S-00	$\frac{1}{4}$	$3\frac{1}{2}$	.05	8	$1\frac{1}{4}$	$11\frac{3}{4}$	2.10	16-A	$2\frac{15}{16}$	27	13.60
00	$\frac{5}{16}$	$3\frac{1}{2}$	.06	8-A	$1\frac{1}{2}$	$11\frac{3}{4}$	2.10	17-A	3	30	18.90
700	$\frac{3}{4}$	4	.08	708-A	$1\frac{3}{8}$	$11\frac{3}{4}$	2.00	17	$3\frac{1}{8}$	30	18.90
0	$1\frac{1}{32}$	4	.08	9	$1\frac{7}{8}$	$13\frac{1}{2}$	2.70	18-A	$3\frac{3}{8}$	33	28.10
701	$\frac{7}{16}$	$4\frac{1}{2}$	.13	709	$1\frac{1}{2}$	$13\frac{1}{2}$	2.70	18	$3\frac{1}{2}$	33	26.50
1	$1\frac{1}{2}$	$4\frac{1}{2}$	.13	10	$1\frac{3}{8}$	$15\frac{1}{4}$	3.50	19-B	$3\frac{3}{4}$	37	33.10
702	$\frac{9}{16}$	$5\frac{3}{8}$	.20	10-A	$1\frac{11}{16}$	$15\frac{1}{4}$	3.50	19	$3\frac{7}{8}$	37	33.10
2	$1\frac{1}{32}$	$5\frac{3}{8}$	.20	11	$1\frac{13}{16}$	17	4.60	19-C	$4\frac{1}{8}$	37	31.50
703	$\frac{5}{8}$	$6\frac{3}{8}$	.33	11-A	$1\frac{7}{8}$	17	4.50	19-A	$4\frac{1}{4}$	37	32.30
3	$1\frac{1}{16}$	$6\frac{3}{8}$	.33	12	2	19	5.80	20-B	$4\frac{1}{2}$	42	50.50
704	$\frac{5}{4}$	$7\frac{1}{4}$	.44	12-A	$2\frac{1}{16}$	19	5.80	20	$4\frac{9}{8}$	42	50.50
4	$2\frac{1}{32}$	$7\frac{1}{4}$	.42	13	$2\frac{3}{16}$	21	7.20	20-A	5	42	50.40
705	$1\frac{13}{16}$	$8\frac{1}{4}$	.67	13-A	$2\frac{1}{4}$	21	7.20	21-A	$5\frac{3}{8}$	47	90.50
5	$\frac{7}{8}$	$8\frac{1}{4}$	.67	14	$2\frac{3}{8}$	23	10.00	21-B	$5\frac{1}{4}$	47	90.50
6	$1\frac{15}{16}$	9	.92	14-A	$2\frac{1}{16}$	23	9.60	21-C	$6\frac{1}{8}$	47	85.50
6-C	$1\frac{31}{32}$	9	.92	15	$2\frac{1}{2}$	25	11.10	22-A	$6\frac{3}{8}$	52	156.00
706	1	9	.89	15-A	$2\frac{5}{8}$	25	11.10	22-B	$7\frac{3}{8}$	52	149.00
7	$1\frac{1}{16}$	$10\frac{1}{2}$	1.30	16	$2\frac{3}{4}$	27	13.60	...	...	...	...

Arm alloy Wrenches

No.	Nominal Opening Inches	Approx. Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	Approx. Weight Lb.
1000	$\frac{3}{16}$	$3\frac{1}{2}$	.07	1705	$\frac{13}{16}$	$8\frac{1}{4}$	.65	1010-A	$1\frac{11}{16}$	$15\frac{1}{4}$	3.90
1700	$\frac{5}{8}$	4	.09	1005	$\frac{7}{8}$	$8\frac{1}{4}$	.65	1011	$1\frac{13}{16}$	17	4.80
1000-A	$1\frac{13}{32}$	4	.09	1006	$1\frac{1}{16}$	9	.92	1011-A	$1\frac{7}{8}$	17	4.80
1701	$\frac{7}{16}$	$4\frac{1}{2}$	.13	1706	1	9	1.50	1012	2	19	6.20
1001	$\frac{1}{2}$	$4\frac{1}{2}$	.13	1007	$1\frac{1}{16}$	$10\frac{1}{2}$	1.50	1012-A	$2\frac{1}{16}$	19	6.20
1702	$\frac{9}{16}$	$5\frac{3}{8}$	.22	1707	$1\frac{1}{8}$	$10\frac{1}{2}$	1.50	1013	$2\frac{3}{16}$	21	8.00
1002	$1\frac{19}{32}$	$5\frac{3}{8}$	.22	1008	$1\frac{1}{4}$	$11\frac{3}{4}$	2.20	1013-A	$2\frac{1}{4}$	21	8.00
1703	$\frac{5}{8}$	$6\frac{3}{8}$	.33	1008-A	$1\frac{1}{16}$	$11\frac{3}{4}$	2.20	1014	$2\frac{3}{8}$	23	10.00
1003	$1\frac{11}{16}$	$6\frac{3}{8}$	.33	1009	$1\frac{1}{2}$	$13\frac{1}{2}$	2.80	1014-A	$2\frac{1}{16}$	23	10.00
1704	$\frac{3}{4}$	$7\frac{1}{4}$	.48	1709	$1\frac{1}{2}$	$13\frac{1}{2}$	2.80	...	...	...	...
1004	$2\frac{25}{32}$	$7\frac{1}{4}$	.48	1010	$1\frac{3}{8}$	$15\frac{1}{4}$	3.90	...	...	...	...

See chart, page 74 listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

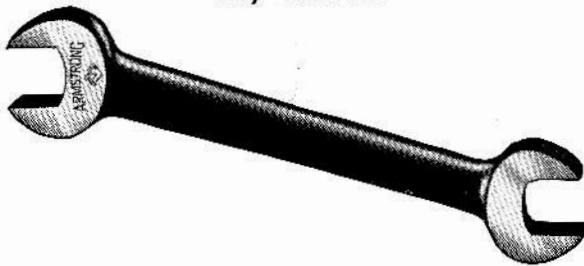
ENGINEERS' PATTERN

15° Angle, Double Head

Drop Forged

HI-TEN

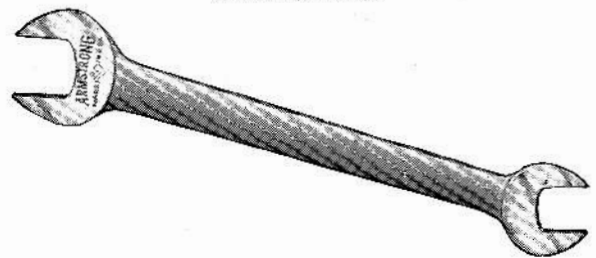
Selected High Carbon Steel
Gray Enameled



Accurately milled. Smoothly burnished.
Carefully hardened and tempered.
Finished in gray baked-on enamel.
Heads ground bright, stamped with catalog number and nominal opening.

ARMALLOY

Selected Alloy Steel
Chrome Plated



Accurately milled. Smoothly burnished.
Carefully hardened and tempered.
Finished in chrome plate.
Heads buffed bright and stamped with catalog number and nominal opening.

All openings are slightly larger than nominal sizes listed to allow for proper clearance. In stock with openings as listed below.

Wrenches with Whitworth and Metric openings in addition to those listed on page 50, are available on special order.

Hi-Ten Wrenches

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Wt. Lb.
.....
.....
.....
721	$\frac{5}{16}$ & $\frac{9}{8}$	$4\frac{1}{8}$	.08
21	$\frac{5}{16}$ & $\frac{13}{32}$	$4\frac{1}{8}$	.08
722	$\frac{5}{16}$ & $\frac{1}{16}$	$5\frac{1}{16}$	.11
723	$\frac{3}{8}$ & $\frac{1}{16}$	$5\frac{1}{16}$	.11
723-A	$\frac{3}{8}$ & $\frac{1}{2}$	$5\frac{1}{2}$	.15
23	$\frac{13}{32}$ & $\frac{1}{2}$	$5\frac{1}{2}$	.15
24	$\frac{13}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$	.20
725	$\frac{1}{16}$ & $\frac{1}{2}$	$5\frac{7}{8}$	.20
725-A	$\frac{1}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$	.20
725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$6\frac{1}{4}$	.22
25	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{4}$	.22
726	$\frac{1}{2}$ & $\frac{5}{8}$	$6\frac{3}{4}$	.34
26	$\frac{1}{2}$ & $\frac{11}{16}$	$6\frac{3}{4}$	.34
727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{4}$	.32
27-C	$\frac{9}{16}$ & $\frac{11}{16}$	$6\frac{3}{4}$	.32
27	$\frac{19}{32}$ & $\frac{11}{16}$	$7\frac{1}{16}$	.35
27-B	$\frac{5}{8}$ & $\frac{11}{16}$	$7\frac{1}{16}$	.35
728	$\frac{9}{16}$ & $\frac{3}{4}$	$7\frac{1}{4}$	.40
28	$\frac{19}{32}$ & $\frac{25}{32}$	$7\frac{1}{4}$	.40
729	$\frac{5}{8}$ & $\frac{3}{4}$	$7\frac{1}{4}$	.38
28-S	$\frac{5}{8}$ & $\frac{25}{32}$	$7\frac{1}{4}$	.38
29-B	$\frac{11}{16}$ & $\frac{3}{4}$	$8\frac{1}{8}$	.50
29	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{8}$	.50
29-C	$\frac{11}{16}$ & $\frac{13}{16}$	$8\frac{1}{8}$	.48

Continued on page 50

Armaloy Wrenches

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Wt. Lb.
1019	$\frac{3}{16}$ & $\frac{1}{4}$	3	.02
1021-S	$\frac{1}{4}$ & $\frac{5}{16}$	$4\frac{1}{2}$	.05
1720	$\frac{5}{16}$ & $\frac{11}{32}$	$4\frac{1}{2}$	.05
1721	$\frac{5}{16}$ & $\frac{3}{8}$	$4\frac{1}{2}$	.05
1021	$\frac{5}{16}$ & $\frac{13}{32}$	$4\frac{1}{2}$	.05
.....
1723	$\frac{3}{8}$ & $\frac{1}{16}$	$4\frac{7}{8}$	.07
1723-A	$\frac{3}{8}$ & $\frac{1}{2}$	$5\frac{1}{4}$	.08
1023	$\frac{13}{32}$ & $\frac{1}{2}$	$5\frac{1}{4}$	.08
.....
1725	$\frac{1}{16}$ & $\frac{1}{2}$	$5\frac{5}{8}$	.10
1725-A	$\frac{1}{16}$ & $\frac{9}{16}$	$6\frac{1}{8}$	.13
1725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$6\frac{1}{8}$	.13
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$	.13
.....
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$	.20
1027-C	$\frac{9}{16}$ & $\frac{11}{16}$	$7\frac{1}{4}$	.26
1027	$\frac{19}{32}$ & $\frac{11}{16}$	$7\frac{1}{4}$	.26
1027-B	$\frac{5}{8}$ & $\frac{11}{16}$	$7\frac{1}{4}$	.26
.....
1028	$\frac{19}{32}$ & $\frac{25}{32}$	$7\frac{7}{8}$	.30
1729	$\frac{5}{8}$ & $\frac{3}{4}$	$7\frac{7}{8}$	.30
1028-S	$\frac{5}{8}$ & $\frac{25}{32}$	$7\frac{7}{8}$	.30
1029-B	$\frac{11}{16}$ & $\frac{3}{4}$	$8\frac{1}{2}$	.35
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$	.35
1029-C	$\frac{11}{16}$ & $\frac{13}{16}$	$8\frac{1}{2}$	.35

Continued on page 50



ARMSTRONG WRENCHES

ENGINEERS' PATTERN

15° Angle, Double Head

Drop Forged

Hi-Ten Wrenches

(Continued)

Armalooy Wrenches

(Continued)

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
730	$\frac{5}{8}$ & $\frac{13}{16}$	$8\frac{1}{2}$	.61	1030	$\frac{11}{16}$ & $\frac{7}{8}$	$8\frac{1}{2}$	.45
30	$\frac{11}{16}$ & $\frac{7}{8}$	$8\frac{1}{2}$	.61	1731	$\frac{3}{4}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.54
731	$\frac{3}{4}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.75	1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.54
731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.75	1031-B	$\frac{25}{32}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.54
31-B	$\frac{25}{32}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.73	1031	$\frac{25}{32}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.54
31	$\frac{25}{32}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.70	1731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.54
731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.75	1032-B	$\frac{13}{16}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.71
32-B	$\frac{13}{16}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.98	1033-A	$\frac{7}{8}$ & $\frac{13}{16}$	10	.71
33-A	$\frac{7}{8}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.98	1733	$\frac{7}{8}$ & 1	$10\frac{7}{8}$	.92
733	$\frac{7}{8}$ & 1	$9\frac{1}{4}$	.98	1033-C	$\frac{13}{16}$ & 1	$10\frac{7}{8}$	.92
33-C	$\frac{13}{16}$ & 1	$9\frac{1}{4}$	.97	1034	$\frac{7}{8}$ & $1\frac{1}{16}$	12	.90
34	$\frac{7}{8}$ & $1\frac{1}{16}$	$11\frac{1}{4}$	1.33	1034-A	$\frac{13}{16}$ & $1\frac{1}{16}$	12	.90
734	$\frac{7}{8}$ & $1\frac{1}{8}$	$11\frac{1}{4}$	1.33	1734-A	$\frac{13}{16}$ & $1\frac{1}{8}$	12	.90
34-A	$\frac{15}{16}$ & $1\frac{1}{16}$	$11\frac{1}{4}$	1.33	1035	$\frac{31}{32}$ & $1\frac{1}{16}$	12	.90
734-A	$\frac{15}{16}$ & $1\frac{1}{8}$	$11\frac{1}{4}$	1.33	1735	1 & $1\frac{1}{8}$	12	.90
35	$\frac{31}{32}$ & $1\frac{1}{16}$	$11\frac{1}{4}$	1.33	1036-B	$\frac{11}{16}$ & $1\frac{1}{8}$	14	1.25
735	1 & $1\frac{1}{8}$	$11\frac{1}{4}$	1.33	1037	$\frac{11}{16}$ & $1\frac{1}{4}$	14	1.25
36-B	$\frac{11}{16}$ & $1\frac{1}{8}$	$12\frac{1}{4}$	2.00	1737	$\frac{11}{8}$ & $1\frac{1}{4}$	14	1.40
37	$\frac{11}{16}$ & $1\frac{1}{4}$	$12\frac{1}{4}$	2.00	1037-A	$\frac{11}{8}$ & $1\frac{1}{16}$	14	1.90
737	$\frac{11}{8}$ & $1\frac{1}{4}$	$12\frac{1}{4}$	2.00	1039-B	$\frac{11}{4}$ & $1\frac{1}{16}$	$16\frac{3}{8}$	1.80
37-A	$\frac{11}{8}$ & $1\frac{1}{16}$	$12\frac{1}{4}$	2.00	1039	$\frac{11}{4}$ & $1\frac{1}{16}$	$16\frac{3}{8}$	2.30
39-B	$\frac{11}{4}$ & $1\frac{1}{16}$	$13\frac{3}{4}$	2.75	1039-A	$\frac{15}{16}$ & $1\frac{1}{2}$	$16\frac{3}{8}$	2.30
39	$\frac{11}{4}$ & $1\frac{1}{16}$	$13\frac{3}{4}$	2.75	1039-C	$\frac{15}{8}$ & $1\frac{1}{16}$	$16\frac{3}{8}$	2.50
39-A	$\frac{15}{16}$ & $1\frac{1}{2}$	$13\frac{3}{4}$	2.70	1040	$\frac{11}{4}$ & $1\frac{5}{8}$	$18\frac{1}{4}$	2.70
39-C	$\frac{13}{8}$ & $1\frac{1}{16}$	$13\frac{3}{4}$	2.50	1041	$\frac{13}{16}$ & $1\frac{5}{8}$	$18\frac{1}{4}$	2.70
40	$\frac{11}{4}$ & $1\frac{5}{8}$	$15\frac{1}{2}$	3.70	1041-B	$1\frac{1}{2}$ & $1\frac{5}{8}$	$18\frac{1}{4}$	2.70
41	$\frac{13}{16}$ & $1\frac{5}{8}$	$15\frac{1}{2}$	3.80				
41-B	$1\frac{1}{2}$ & $1\frac{5}{8}$	$15\frac{1}{2}$	3.80				
42	$\frac{13}{16}$ & $1\frac{13}{16}$	17	5.50				
42-A	$1\frac{1}{2}$ & $1\frac{13}{16}$	17	5.80				
43	$\frac{15}{8}$ & $1\frac{13}{16}$	17	5.80				
44	$\frac{15}{8}$ & 2	19	7.80				
44-A	$\frac{11}{16}$ & $1\frac{7}{8}$	19	7.30				
45	$\frac{13}{16}$ & 2	19	7.10				
45-A	$1\frac{1}{8}$ & $2\frac{1}{16}$	19	6.70				
47	2 & $2\frac{3}{16}$	21	9.30				
47-B	$2\frac{1}{16}$ & $2\frac{3}{4}$	21	9.30				
48	2 & $2\frac{3}{8}$	23	13.00				
49	$2\frac{3}{16}$ & $2\frac{3}{8}$	23	11.90				
49-A	$2\frac{1}{4}$ & $2\frac{3}{16}$	23	12.25				
51	$2\frac{3}{8}$ & $2\frac{9}{16}$	25	13.30				
51-A	$2\frac{1}{16}$ & $2\frac{9}{8}$	25	13.30				
53	$2\frac{9}{16}$ & $2\frac{3}{4}$	27	16.70				
53-A	$2\frac{5}{8}$ & $2\frac{13}{16}$	27	16.50				
54-C	$2\frac{3}{4}$ & $2\frac{15}{16}$	31	23.80				
55-A	$2\frac{1}{16}$ & 3	32	25.00				
55-B	$2\frac{15}{16}$ & $3\frac{1}{8}$	32	25.00				
57-B	3 & $3\frac{3}{8}$	37	36.00				
57	$3\frac{1}{8}$ & $3\frac{1}{2}$	37	37.00				
58-A	$3\frac{3}{8}$ & $3\frac{3}{4}$	37	48.50				
58	$3\frac{1}{2}$ & $3\frac{3}{8}$	37	46.00				
60-A	$3\frac{3}{4}$ & $4\frac{1}{8}$	40	48.00				
60	$3\frac{7}{8}$ & $4\frac{1}{4}$	40	48.00				
62-A	$4\frac{1}{8}$ & $4\frac{1}{2}$	43	67.00				
62	$4\frac{1}{4}$ & $4\frac{5}{8}$	43	67.00				
63-A	$4\frac{3}{8}$ & 5	47	76.00				
64-A	5 & $5\frac{3}{8}$	47	118.00				

ENGINEERS PATTERN WRENCHES

with Metric openings

Selected alloy steel, chrome plated.

No.	Metric Size Openings m/m	Approx. Extreme Length, In.	Approx. Wt. Lb.
1721-M	6 & 7	$4\frac{1}{2}$	.05
1021-M	8 & 9	$4\frac{1}{2}$	.05
1723-M	10 & 11	$4\frac{7}{8}$	.06
1725-M	12 & 13	$5\frac{3}{8}$	.09
1727-M	14 & 15	$6\frac{3}{8}$	.18
1027-M	16 & 17	$7\frac{1}{4}$	.19
1029-M	18 & 19	$8\frac{1}{2}$	.37
1731-M	20 & 22	$9\frac{1}{4}$	.50
1031-M	21 & 23	$9\frac{1}{4}$	.50
1033-M	24 & 26	10	.62

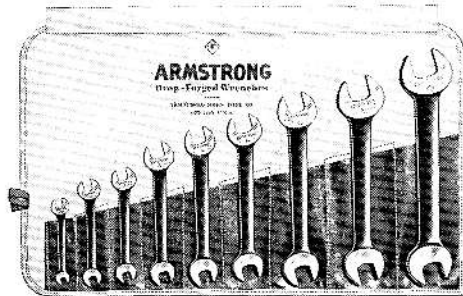


ARMSTRONG ENGINEERS' WRENCH SETS

15° Angle, Double Head

Drop Forged

HI-TEN
Selected Steel
Set No. 9-38R


Nine wrenches, openings $\frac{3}{8}$ to $1\frac{5}{8}$ "; no duplications.

No.	Nominal Openings Inches	Approximate Extreme Length, Inches
723	$\frac{3}{8}$ & $\frac{7}{16}$	$5\frac{1}{16}$
25	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{4}$
727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{4}$
29	$\frac{11}{16}$ & $\frac{23}{32}$	$8\frac{1}{8}$
731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
33-C	$\frac{15}{16}$ & 1	$9\frac{13}{16}$
37	$1\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{1}{4}$
37-A	$1\frac{1}{8}$ & $1\frac{5}{8}$	$12\frac{1}{4}$
41	$1\frac{7}{8}$ & $1\frac{5}{8}$	$15\frac{1}{2}$

Set No. 9-38R, in Roll No. R-1; Approximate Wt., 10.75 Lb.
Set No. 9-38C, in Cardboard Box; Approximate Wt. 10.25 Lb.

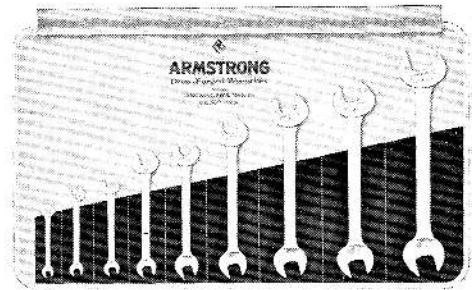
ARMALLOY
METRIC
WRENCH SETS

Set No. 9A-MR

Contents: one each of the following metric wrenches in plastic roll No. R-1.

1721-M 1027-M
1021-M 1731-M
1723-M 1031-M
1725-M 1033-M
1727-M

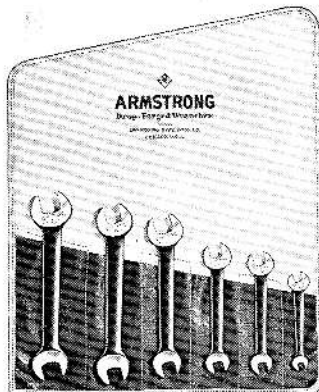
Approximate weight 9.5 lb.


Nine wrenches, openings $\frac{3}{8}$ to $1\frac{5}{8}$ "; no duplications.

No.	Nominal Openings Inches	Approximate Extreme Length, Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{23}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$
1037	$1\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1037-A	$1\frac{1}{8}$ & $1\frac{5}{8}$	$12\frac{3}{4}$
1041	$1\frac{7}{8}$ & $1\frac{5}{8}$	$15\frac{3}{4}$

Set No. 9A-38R, in Roll No. R-1; Approximate Wt., 9.5 Lb.
Set No. 9A-38C, in Cardboard Box; Approx. Wt. 9 Lb.

HI-TEN
Set No. 6-26R


Six wrenches, openings $\frac{3}{8}$ to 1"; no duplications.

No.	Nominal Openings Inches	Approximate Extreme Length, Inches
723	$\frac{3}{8}$ & $\frac{7}{16}$	$5\frac{1}{16}$
25	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{4}$
727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{4}$
29	$\frac{11}{16}$ & $\frac{23}{32}$	$8\frac{1}{8}$
731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
33-C	$\frac{15}{16}$ & 1	$9\frac{13}{16}$

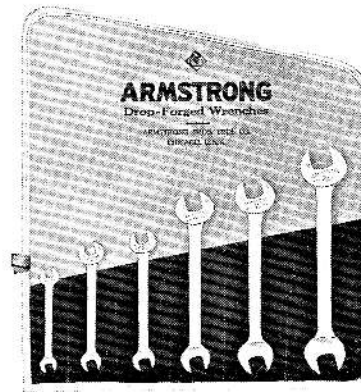
Set No. 6-26R, in Roll No. R-3; Approximate Wt., 2.75 Lb.
Set No. 6-26C, in Cardboard Box; Approx. Wt., 2.50 Lb.

ARMALLOY
METRIC
WRENCH SETS

Set No. 6A-MR

Contents: one each of the following metric wrenches in plastic roll No. R-3.

1721-M 1725-M
1021-M 1727-M
1723-M 1027-M
Approximate weight 2.25 lb.


Six wrenches, openings $\frac{3}{8}$ to 1"; no duplications.

No.	Nominal Openings Inches	Approximate Extreme Length, Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{23}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$

Set No. 6A-26R, in Roll No. R-3; Approx. Wt., 2.25 Lb.
Set No. 6A-26C, in Cardboard Box; Approx. Wt., 2.00 Lb.



ARMSTRONG HI-TEN WRENCHES

THIN PATTERN

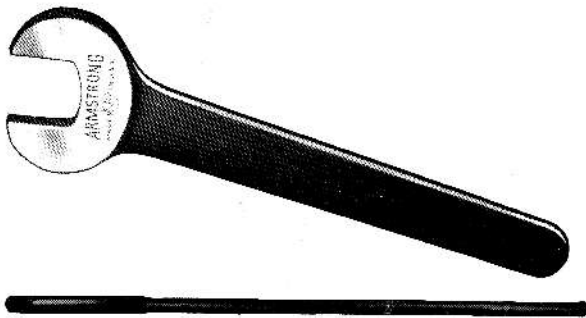
For Check, Jam or Lock Nuts

15° Angle

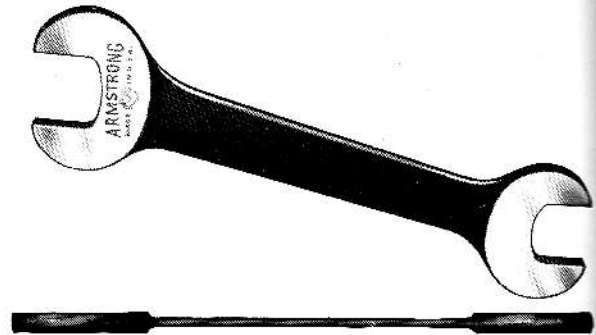
Drop Forged—Selected High Carbon Steel

Gray Enameled

Single Head



Double Head



Accurately milled. Smoothly burnished. Carefully hardened and tempered. Attractively finished in gray baked-on enamel.

Heads ground bright and stamped with catalog number and nominal size of openings.

All openings slightly larger than nominal size listed to allow for proper clearance.
In stock with openings as listed below.

Wrenches with Whitworth and Metric openings are available on special order.

Single Head Wrenches

No.	Nominal Opening Inches	Approx. Extreme Length Inches	Thickness Head Inches	Approx. Weight Lb.
601-A	$\frac{7}{16}$	$3\frac{15}{16}$	$\frac{5}{32}$	.08
601	$\frac{1}{2}$	$3\frac{15}{16}$	$\frac{5}{32}$	.08
602-A	$\frac{9}{16}$	$4\frac{7}{16}$	$\frac{11}{64}$	.12
602	$\frac{19}{32}$	$4\frac{7}{16}$	$\frac{11}{64}$	.12
603-A	$\frac{5}{8}$	$5\frac{1}{8}$	$\frac{3}{16}$	.16
603	$\frac{11}{16}$	$5\frac{1}{8}$	$\frac{3}{16}$	.16
604-A	$\frac{3}{4}$	6	$\frac{7}{32}$	.23
604	$\frac{25}{32}$	6	$\frac{7}{32}$	.23
605-A	$\frac{13}{16}$	$6\frac{3}{4}$	$\frac{1}{4}$	.33
605	$\frac{7}{8}$	$6\frac{3}{4}$	$\frac{1}{4}$	.33
606	$\frac{15}{16}$	$7\frac{1}{2}$	$\frac{9}{32}$	.48
606-B	1	$7\frac{1}{2}$	$\frac{9}{32}$	.48
607	$\frac{11}{16}$	$8\frac{1}{2}$	$\frac{5}{16}$	.66
607-A	$\frac{11}{8}$	$8\frac{1}{2}$	$\frac{5}{16}$	.66
608	$\frac{11}{4}$	10	$\frac{3}{8}$	1.10
608-A	$\frac{15}{16}$	10	$\frac{3}{8}$	1.10
609	$\frac{17}{16}$	$11\frac{1}{2}$	$\frac{7}{16}$	1.60
609-A	$\frac{11}{2}$	$11\frac{1}{2}$	$\frac{7}{16}$	1.60
610	$\frac{15}{8}$	13	$\frac{1}{2}$	2.50
610-A	$\frac{11}{16}$	13	$\frac{1}{2}$	2.50

Double Head Wrenches

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thickness Head Inches	Approx. Weight Lb.
623	$\frac{13}{32}$ & $\frac{1}{2}$	$4\frac{1}{2}$	$\frac{5}{32}$	.13
623-D	$\frac{7}{16}$ & $\frac{1}{2}$	$4\frac{1}{2}$	$\frac{5}{32}$	.13
624-A	$\frac{7}{16}$ & $\frac{9}{16}$	$4\frac{1}{2}$	$\frac{5}{32}$	.13
624-B	$\frac{1}{2}$ & $\frac{9}{16}$	$4\frac{1}{2}$	$\frac{5}{32}$	.11
625	$\frac{1}{2}$ & $\frac{19}{32}$	$4\frac{1}{2}$	$\frac{5}{32}$	.11
626-S	$\frac{9}{16}$ & $\frac{5}{8}$	$5\frac{5}{8}$	$\frac{3}{16}$	.17
627	$\frac{19}{32}$ & $\frac{11}{16}$	$5\frac{5}{8}$	$\frac{3}{16}$	.19
629-D	$\frac{5}{8}$ & $\frac{3}{4}$	$6\frac{5}{8}$	$\frac{7}{32}$	.23
629	$\frac{11}{16}$ & $\frac{23}{32}$	$6\frac{5}{8}$	$\frac{7}{32}$	.23
630	$\frac{11}{16}$ & $\frac{7}{8}$	$6\frac{5}{8}$	$\frac{7}{32}$	.36
630-B	$\frac{3}{4}$ & $\frac{13}{16}$	$6\frac{5}{8}$	$\frac{7}{32}$	.33
630-E	$\frac{3}{4}$ & $\frac{7}{8}$	$6\frac{5}{8}$	$\frac{7}{32}$	.33
631	$\frac{25}{32}$ & $\frac{7}{8}$	$6\frac{5}{8}$	$\frac{7}{32}$	.34
631-A	$\frac{13}{16}$ & $\frac{7}{8}$	$6\frac{5}{8}$	$\frac{7}{32}$	.34
632-C	$\frac{7}{8}$ & $\frac{15}{16}$	$8\frac{1}{8}$	$\frac{9}{32}$	.59
634-A	$\frac{7}{8}$ & 1	$8\frac{1}{8}$	$\frac{9}{32}$	.59
634	$\frac{7}{8}$ & $\frac{11}{16}$	$8\frac{1}{8}$	$\frac{9}{32}$	.57
632-X	$\frac{15}{16}$ & 1	$8\frac{1}{8}$	$\frac{9}{32}$	.57
634-B	$\frac{15}{16}$ & $\frac{11}{16}$	$8\frac{1}{8}$	$\frac{9}{32}$	.57
635-D	1 & $\frac{11}{8}$	10	$\frac{11}{32}$	1.00
637	$\frac{11}{16}$ & $\frac{11}{4}$	10	$\frac{11}{32}$	.95
637-A	$\frac{11}{16}$ & $\frac{13}{16}$	10	$\frac{11}{32}$	.95
639	$\frac{11}{4}$ & $\frac{17}{16}$	12	$\frac{13}{32}$	1.84
640	$\frac{11}{4}$ & $\frac{13}{8}$	12	$\frac{13}{32}$	1.84
640-A	$\frac{17}{16}$ & $\frac{11}{2}$	12	$\frac{13}{32}$	1.80

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

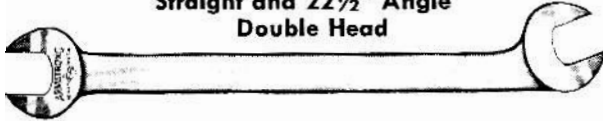
ARMSTRONG ARMALLOY WRENCHES

TAPPET PATTERN

Drop Forged—Selected Alloy Steel—Chrome Plated

Accurately milled. Smoothly burnished. Carefully hardened and tempered. Chrome plated. Wrench heads are buffed bright and plainly stamped with catalog number and nominal opening. Openings milled slightly larger than nominal sizes listed to allow for proper clearance. Wrenches with special openings available on special order.

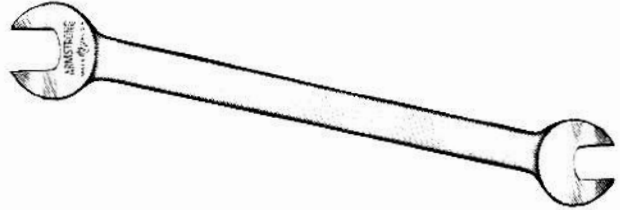
Straight and 22½° Angle Double Head



Long narrow jaws facilitate reaching inaccessible tapet nuts. Both openings are same size but at different angles, one straight, one at 22½° allowing for extra fine adjustment.

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.
401	3/8 & 3/8	8	5/32	.20
401-A	7/16 & 7/16	8	5/32	.20
402	1/2 & 1/2	8 1/2	5/32	.40
402-A	17/32 & 17/32	8 1/2	5/32	.40
403	9/16 & 9/16	8 1/2	5/32	.40
403-A	19/32 & 19/32	8 1/2	5/32	.40
404	5/8 & 5/8	8 1/2	5/16	.40
404-A	21/32 & 21/32	8 1/2	5/16	.40
405	11/16 & 11/16	8 1/2	3/16	.40
406	3/4 & 3/4	9	3/16	.60
406-A	23/32 & 23/32	9	3/16	.60
407	13/16 & 13/16	9	3/16	.60
407-A	7/8 & 7/8	9	3/16	.60
408	15/16 & 15/16	9	7/32	.60
408-A	31/32 & 31/32	9	7/32	.60
409	1 & 1	9	7/32	.60

15° Angle—Double Head



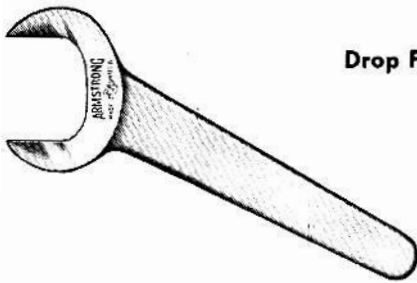
Has 15° angle openings at both ends. Different size openings at each end. The long, thin design of this wrench combines lightness with strength.

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.
1090-A	3/8 & 7/16	8	5/32	.09
1090	7/16 & 1/2	8	5/32	.09
1090-G	7/16 & 17/32	8	5/32	.19
1090-D	1/2 & 9/16	8	5/32	.19
1092	9/16 & 5/8	8 1/2	3/16	.22
1092-F	5/8 & 11/16	8 1/2	3/16	.22
1094-G	3/4 & 13/16	9	7/32	.34
1094	3/4 & 7/8	9	7/32	.34
1096	15/16 & 1	9	7/32	.34

OPEN END—THIN PATTERN

30° Angle—Single Head

Drop Forged—Selected Alloy Steel—Chrome Plated



Accurately milled. Smoothly burnished. Carefully hardened and tempered. Finished in chrome plate.

Wrench heads are buffed bright, plainly stamped with catalog number and nominal openings.

Especially designed for adjusting machinery where short handle, thin wrench is required.

Use with added leverage is not recommended.

Wrenches with special openings available on special order.

No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick- ness Inches	Width Inches					Thick- ness Inches	Width Inches	
1224	3/4	6 3/16	1/4	1 11/16	.20	1248	1 1/2	7 13/16	9/32	2 1/2	.42
*1224-A	1 1/8	7 1/16	1/4	1 7/8	.23	1250	1 9/16	7 13/16	9/32	2 3/8	.42
1226	1 3/16	6 3/16	1/4	1 11/16	.25	1252	1 5/8	7 13/16	9/32	2 3/8	.42
1228	7/8	6 3/16	1/4	1 11/16	.17	1254	1 11/16	7 13/16	9/32	2 3/8	.42
1230	1 5/16	7 1/16	1/4	1 7/8	.22	1256	1 3/4	8 5/8	3/16	3 1/8	1.06
1232	1	7 1/16	1/4	1 7/8	.22	1258	1 13/16	8 5/8	3/16	3 1/8	1.06
1232-A	1 1/32	6 3/16	1/4	1 11/16	.28	1260	1 7/8	8 5/8	3/16	3 1/8	1.06
1234	1 1/16	7 1/16	1/4	1 7/8	.28	1262	1 15/16	8 5/8	3/16	3 1/8	1.06
1236	1 1/8	7 1/16	1/4	2 1/16	.28	1264	2	8 5/8	3/16	3 1/2	1.06
1236-S	1 5/16	7 1/16	1/4	2 1/16	.28	1264-S	2 3/16	8 5/8	3/16	3 1/2	1.06
1236-X	1 5/16	7 1/16	9/32	2 1/16	.28	1266	2 1/16	8 5/8	3/16	3 1/2	1.06
1238	1 3/16	7 1/16	1/4	2 1/16	.28	1268	2 3/8	8 5/8	3/16	3 1/2	1.06
1240	1 1/4	7 1/16	1/4	2 1/16	.28	1270	2 5/16	8 5/8	3/16	3 1/2	1.06
1241	1 9/32	7 1/16	1/4	2 1/16	.28	1272	2 1/4	8 5/8	3/16	3 1/2	1.06
1242	1 5/16	7 13/16	9/32	2 1/2	.42	1276	2 3/8	8 5/8	3/16	3 1/2	1.06
1244	1 3/8	7 13/16	9/32	2 1/2	.42	1272-S	2 1/2	8 5/8	3/16	3 1/2	1.06
1246	1 7/16	7 13/16	9/32	2 1/2	.42						

*Extra narrow head for working in close quarters; recommended for light work only.

For full line of Armstrong Wrenches for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY TAPPET WRENCH SETS

15° Angle—Double Head

These Wrench Sets have been selected to include wrenches for the adjustment of tappets on most tractors, trucks and busses as well as passenger cars.



Set No. 1032R

Set consists of six wrenches furnished in pairs, openings for tappets, sizes $\frac{1}{16}$ to $1\frac{1}{16}$ ".



Set No. 1042R

Set consists of eight wrenches, furnished in pairs, openings for tappets, sizes $\frac{1}{16}$ to $\frac{7}{8}$ ".

Two Each Nos.	Nominal Openings Inches	Approx. Extreme Length, In.	Approx. Wt. Lb.
1090	$\frac{1}{16}$ & $\frac{1}{2}$	8	.09
1090-D	$\frac{1}{2}$ & $\frac{9}{16}$	8	.19
1092-F	$\frac{5}{8}$ & $1\frac{1}{16}$	$8\frac{1}{2}$	.22

Set No. 1032R, in Roll No. R-13; Approximate Weight, 1 Lb.

Set No. 1032C, in Cardboard Box; Approx. Wt., 1 Lb.

Two Each Nos.	Nominal Openings Inches	Approx. Extreme Length, In.	Approx. Wt. Lb.
1090	$\frac{1}{16}$ & $\frac{1}{2}$	8	.09
1090-D	$\frac{1}{2}$ & $\frac{9}{16}$	8	.19
1092-F	$\frac{5}{8}$ & $1\frac{1}{16}$	$8\frac{1}{2}$	.22
1094	$\frac{3}{4}$ & $\frac{7}{8}$	9	.34

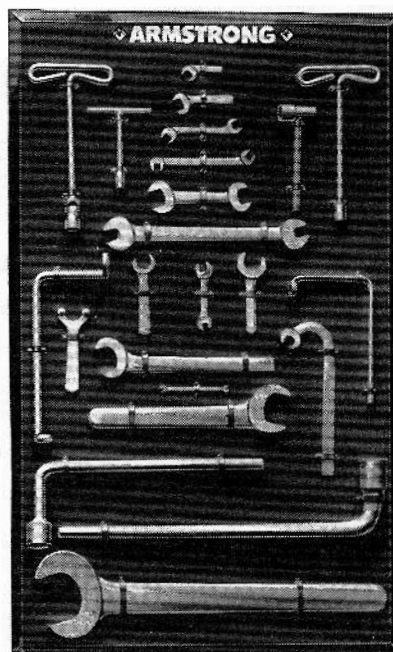
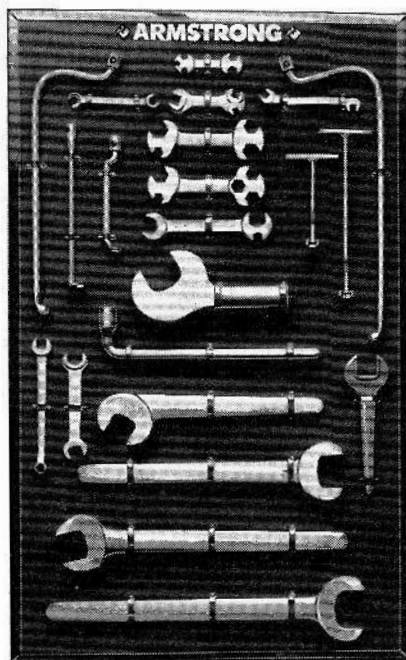
Set No. 1042R, in Roll No. R-15; Approximate Weight, 2.75 Lb.

Set No. 1042C, in Cardboard Box; Approx. Wt., 2.75 Lb.

See page 91 for descriptions of all plastic rolls

ARMSTRONG SPECIAL WRENCHES

Illustrated are some of the various types of special wrenches which we have manufactured and for which we have the necessary dies, jigs and fixtures.



When other than stock wrenches are needed for special application, consult your ARMSTRONG representative or write directly to our general offices, Chicago.

A print or sketch should accompany such inquiry.



ARMSTRONG ARMALLOY MINIATURE WRENCHES AND SETS

Drop Forged—Selected Alloy Steel
Chrome Plated

Open End Pattern

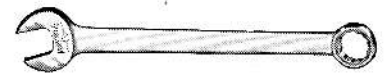


15° Angle Openings



15° and 75° Angle Openings

Combination Pattern



Combination Box and Open End

ARMALLOY Miniature Wrenches are invaluable for accurate work on generators, radios, refrigerator units—in fact any device requiring delicate adjustment is best serviced with these wrenches, furnished in three styles as illustrated. Drop forged from selected alloy steel, accurately milled, smoothly burnished, heat treated and finished in chrome plate with heads buffed bright.

15° Angle Openings

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Approx. Thickness Heads Inches	Approx. Weight Lb.
H-9	$\frac{1}{8}$ & $\frac{15}{64}$	$\frac{29}{16}$	$\frac{3}{32}$	.02
H-10	$\frac{9}{16}$ & $\frac{7}{32}$	$\frac{29}{16}$	$\frac{3}{32}$	.02
H-12	$\frac{1}{4}$ & $\frac{9}{32}$	$\frac{31}{16}$	$\frac{7}{64}$	.02
H-14	$\frac{5}{16}$ & $\frac{11}{32}$	$\frac{33}{16}$	$\frac{1}{8}$.03
H-15	$\frac{9}{32}$ & $\frac{3}{8}$	$\frac{33}{16}$	$\frac{1}{8}$.03
H-16	$\frac{3}{8}$ & $\frac{7}{16}$	$\frac{43}{16}$	$\frac{5}{32}$.03
H-18	$\frac{13}{32}$ & $\frac{15}{32}$	$\frac{47}{16}$	$\frac{5}{32}$.03
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15 and 75° Angle Openings

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Approx. Thickness Heads Inches	Approx. Weight Lb.
1112	$\frac{3}{16}$ & $\frac{3}{16}$	3	$\frac{3}{32}$	.01
1113	$\frac{13}{64}$ & $\frac{15}{64}$	3	$\frac{3}{32}$	.01
1114	$\frac{7}{32}$ & $\frac{7}{32}$	3	$\frac{3}{32}$	.01
1115	$\frac{15}{64}$ & $\frac{15}{64}$	3	$\frac{3}{32}$	.01
1116	$\frac{1}{4}$ & $\frac{1}{4}$	3	$\frac{3}{32}$	.01
1118	$\frac{9}{32}$ & $\frac{9}{32}$	$\frac{33}{4}$	$\frac{1}{8}$	.03
1120	$\frac{7}{16}$ & $\frac{9}{16}$	$\frac{33}{4}$	$\frac{1}{8}$	.03
1122	$\frac{11}{32}$ & $\frac{11}{32}$	$\frac{33}{4}$	$\frac{1}{8}$	.04
1124	$\frac{3}{8}$ & $\frac{3}{8}$	$\frac{33}{4}$	$\frac{1}{8}$	.04
1128	$\frac{7}{16}$ & $\frac{7}{16}$	$\frac{41}{2}$	$\frac{5}{32}$	.07
1132	$\frac{1}{2}$ & $\frac{1}{2}$	$\frac{41}{2}$	$\frac{5}{32}$	.07
1136	$\frac{9}{16}$ & $\frac{9}{16}$	$\frac{51}{2}$	$\frac{3}{16}$	.11
1140	$\frac{5}{8}$ & $\frac{5}{8}$	$\frac{51}{2}$	$\frac{3}{16}$	.11

Combination Box and Open End

No.	Nominal Openings Inches	Approx. Extreme Lgth., In.	Approx. Weight Lb.
*1157	$\frac{7}{32}$ & $\frac{7}{32}$	3	.03
*1158	$\frac{1}{4}$ & $\frac{1}{4}$	3	.03
*1158-A	$\frac{9}{32}$ & $\frac{9}{32}$	$\frac{31}{2}$.05
*1159	$\frac{5}{16}$ & $\frac{5}{16}$	$\frac{31}{2}$.05
1159-A	$\frac{11}{32}$ & $\frac{11}{32}$	$\frac{41}{4}$.08
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$\frac{41}{4}$.08
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*These sizes have single hex, 6-point opening in box end.

For miniature box socket wrenches, see page 59.

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws.

Miniature Set No. H-5R



This set contains one each of Nos. H-10, H-12, H-14, H-16 and H-18 miniature wrenches (see above).

Five wrenches with openings from $\frac{3}{16}$ to $\frac{15}{32}$."

No duplications.

In roll or cardboard box.

Set No. H-5C, in Cardboard Box; Approx. Weight, .5 Lb.

Set No. H-5R, in Roll No. R-5; Approximate Weight, .5 Lb.

Miniature Angle Wrench Sets



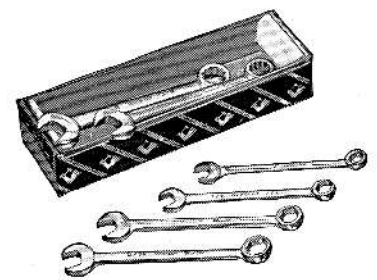
Set No. 1140P. Includes 10 miniature wrenches: Nos. 1112, 1113, 1114, 1115, 1116, 1118, 1120, 1122, 1124, 1128 (see above) and 1 pair of No. 1519-A electrical pliers. In Roll No. R-7; Approximate Weight, .5 Lb.

Set No. 1142P

Includes the ten miniature wrenches of Set No. 1140-P plus Nos. 1132, 1136 and 1140; and No. 1519-A Pliers in Roll No. R-9; Approx. Wt. .75 Lb.

See page 91 for descriptions of all plastic rolls.

Miniature Combination Wrench Set No. 1186C



Set No. 1186C contains six miniature combination wrenches Nos. 1157, 1158, 1158A, 1159, 1159A, 1160.

This set ideal for electrical and ignition work. Nominal openings included are $\frac{1}{32}$, $\frac{1}{4}$, $\frac{9}{32}$, $\frac{5}{16}$, $\frac{11}{32}$ and $\frac{3}{8}$."

Set No. 1186C, in Cardboard Box; Approximate Weight, .5 Lb.

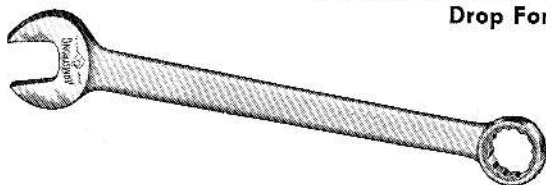
Set No. 1186R, in Roll No. R-11; Approximate Weight, .5 Lb.



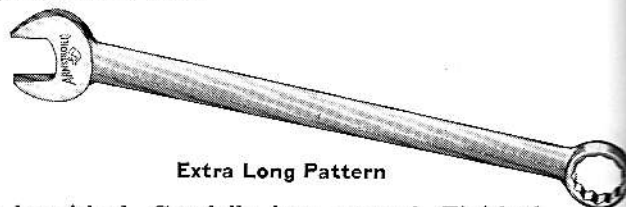
ARMSTRONG ARMALLOY WRENCHES

COMBINATION OPEN END AND BOX PATTERN

Drop Forged—Selected Alloy Steel



Standard Pattern



Extra Long Pattern

Accurately milled and broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate with heads buffed bright. Stamped with catalog number and nominal opening.

Both ends have same size opening; opening in open end is offset 15°, head of box socket end is offset 15°. Each end rotates hex nuts when swing arc is only 30°.

In stock with openings listed. Wrenches with special openings available on special order.

Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.	Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.	Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.
*1157	$\frac{1}{32}$	3	.03	1161	$\frac{1}{16}$	5	.09	1166	$\frac{3}{4}$	8	.50
*1158	$\frac{1}{4}$	3	.03	1162	$\frac{1}{2}$	$5\frac{1}{4}$	.13	1166-A	$\frac{25}{32}$	8	.50
*1158-A	$\frac{9}{32}$	$3\frac{1}{2}$	.05	1163	$\frac{9}{16}$	$5\frac{7}{8}$	.21	1167-A	$\frac{13}{16}$	$10\frac{1}{2}$	.75
*1159	$\frac{5}{16}$	$3\frac{1}{2}$	.05	1163-A	$\frac{19}{32}$	$5\frac{7}{8}$	.21	1167	$\frac{7}{8}$	$10\frac{1}{2}$	.75
1159-A	$\frac{11}{32}$	$4\frac{1}{4}$	.08	1164	$\frac{5}{8}$	$6\frac{1}{4}$	.28				
1160	$\frac{3}{8}$	$4\frac{1}{4}$	.08	1165	$\frac{11}{16}$	$7\frac{1}{8}$	.28				

*These sizes have single hex, 6-point opening in box end.

Extra Long combination wrenches for use where additional leverage is required to loosen tight nuts.

Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.	Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.	Number	Nominal Openings Inches (Both ends)	Length	Weight Lbs.
1160L	$\frac{3}{8}$	$7\frac{1}{8}$	.09	1167L	$\frac{1}{8}$	$12\frac{1}{8}$	.75	1176L	$\frac{1}{16}$	$21\frac{1}{8}$	3.88
1161L	$\frac{7}{16}$	$7\frac{7}{8}$	.14	1168L	$\frac{15}{16}$	$13\frac{7}{8}$	1.13	1178L	$\frac{11}{2}$	$21\frac{1}{8}$	3.88
1162L	$\frac{1}{2}$	$8\frac{5}{8}$	.16	1170L	1	$13\frac{1}{8}$	1.13	1180L	$\frac{15}{8}$	$24\frac{1}{8}$	5.70
1163L	$\frac{9}{16}$	$9\frac{5}{8}$	.21	1171L	$\frac{11}{16}$	15	1.75	1182L	$\frac{11}{16}$	$24\frac{1}{8}$	5.70
1164L	$\frac{5}{8}$	$10\frac{3}{8}$	.30	1172L	$\frac{11}{8}$	15	1.75	1184L	$\frac{13}{4}$	$27\frac{1}{8}$	6.80
1165L	$\frac{11}{16}$	$11\frac{1}{8}$	.37	1173L	$\frac{11}{4}$	$18\frac{1}{8}$	2.56	1186L	$\frac{113}{16}$	$27\frac{1}{8}$	6.80
1166L	$\frac{3}{4}$	$11\frac{1}{8}$	.46	1174L	$\frac{15}{16}$	$18\frac{1}{8}$	2.56	1188L	$\frac{17}{8}$	$27\frac{1}{8}$	7.20
1167-AL	$\frac{13}{16}$	$12\frac{1}{8}$	.56	1175L	$\frac{13}{8}$	20	3.25	1190L	2	$27\frac{1}{8}$	7.20

COMBINATION WRENCH SETS

Set No. 1104R

Set No. 1104R in Plastic Roll No. R-17. Set No. 1104C in Cardboard Box. Approx. wt., .75 lb.

Four wrenches with openings $\frac{1}{16}$ " to $\frac{5}{8}$ ".



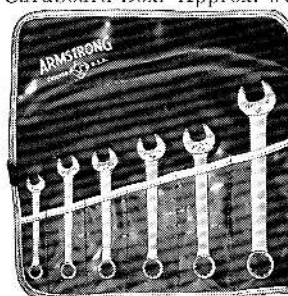
Contents

No.	Nominal Openings, In.	Lgth. In.
1161	$\frac{1}{16}$ & $\frac{1}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$

Set No. 1106R

Set No. 1106R in Plastic Roll No. R-3. Set No. 1106C in Cardboard Box. Approx. wt., 1 lb.

Six wrenches with openings $\frac{3}{8}$ " to $\frac{3}{4}$ ".



Contents

No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8

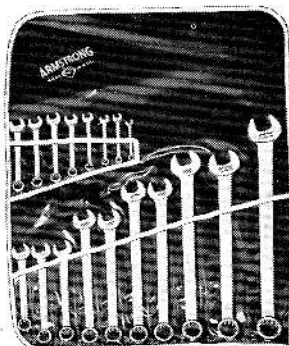
Set No. 1118R

18 wrenches with openings $\frac{5}{16}$ " to $1\frac{1}{4}$ ". Set No. 1118R in convenient 18-pocket Plastic Roll, No. R-19. Set No. 1118C in Cardboard Box. Approx. weight, 12.5 lbs.

Contents

No.	Nominal Openings, In. (Both Ends)	Length In.	No.	Nominal Openings, In. (Both Ends)	Length In.
1159	$\frac{5}{16}$	$3\frac{1}{2}$	1166	$\frac{3}{4}$	8
1159-A	$\frac{11}{32}$	$4\frac{1}{4}$	1166-A	$\frac{25}{32}$	8
1160	$\frac{3}{8}$	$4\frac{1}{4}$	1167-AL	$\frac{13}{16}$	$12\frac{1}{8}$
1161	$\frac{7}{16}$	5	1167L	$\frac{7}{8}$	$12\frac{1}{8}$
1162	$\frac{1}{2}$	$5\frac{1}{4}$	1168L	$\frac{15}{16}$	$13\frac{1}{8}$
1163	$\frac{9}{16}$	$5\frac{7}{8}$	1170L	1	$13\frac{1}{8}$
1163-A	$\frac{19}{32}$	$5\frac{7}{8}$	1171L	$\frac{11}{16}$	15
1164	$\frac{5}{8}$	$6\frac{1}{4}$	1172L	$\frac{11}{8}$	15
1165	$\frac{11}{16}$	$7\frac{1}{8}$	1173L	$\frac{11}{4}$	$18\frac{1}{8}$

See page 91 for descriptions of all plastic rolls





Set No. 1108R

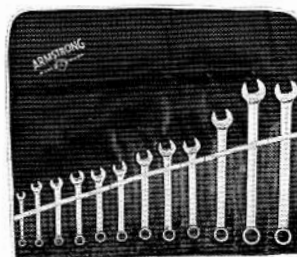
Eight wrenches with openings $\frac{3}{8}$ " to $\frac{7}{8}$ ".

Set No. 1108R in Plastic Roll No. R-21.

Set No. 1108C, in Cardboard box. Approx. weight 2.17 lb.

Contents

No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$	$7\frac{1}{8}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$



Set No. 1112R

Twelve wrenches with openings $\frac{3}{8}$ " to 1".

Set No. 1112R, in Plastic Roll No. R-23.

Set No. 1112C, in Cardboard Box. Approx. weight, 5.5 lb.

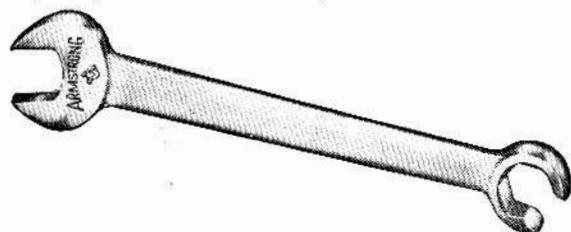
Contents

No.	Nominal Openings, In.	Lgth. In.	No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$	1165	$\frac{11}{16}$ & $\frac{11}{16}$	$7\frac{1}{8}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$	1166-A	$\frac{23}{32}$ & $\frac{25}{32}$	8
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$	1168-L	$\frac{15}{16}$ & $\frac{15}{16}$	$13\frac{1}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$	1170-L	1 & 1	$13\frac{1}{8}$

See page 91 for descriptions of all plastic rolls.

COMBINATION OPEN END AND FLARE NUT PATTERN

Drop Forged—Selected Alloy Steel—Chrome Plated



Accurately milled and broached. Smoothly burnished. Carefully heat treated.

Finished in chrome plate with heads buffed bright.

Wrenches plainly stamped with catalog number and nominal opening.

Both ends have same size opening.

Opening in open end is offset 15°. Head of 6-point open box end is offset 15° with the slot at 22½° to the axis of handle.

Each end rotates hex nuts when swing is only 30°, especially useful over tubing and pipe in close quarters.

In stock with openings listed. Wrenches with special openings available on special order.

No.	Nominal Openings Inches	Width Open Head Inches	Outside Diameter Box Head Inches	Box Head Slot, In.	Approx. Extreme Length Inches	Approx. Weight Lb.
1312	3/8 & 3/8	29/32	21/32	1/4	5	.09
1314	7/16 & 7/16	1 1/32	23/32	9/32	5 1/4	.13
1316	1/2 & 1/2	1 5/32	27/32	3/8	5 7/8	.21
1318	9/16 & 9/16	1 19/64	29/32	7/16	6 1/4	.28
1320	5/8 & 5/8	1 27/64	1	15/32	7	.35
1322	1 1/16 & 1 1/16	1 35/64	1 3/32	9/16	8	.50
1324	3/4 & 3/4	1 13/64	1 1/4	5/8	10 1/2	.75
1328	7/8 & 7/8	2	1 1/2	11/16	13	1.13
1332	1 & 1	2 7/16	1 19/32	3/4	15	1.75
1334	1 1/16 & 1 1/16	2 5/8	1 13/16	27/32	18	2.56
1336	1 1/8 & 1 1/8	2 5/8	1 13/16	27/32	18	2.56

FLARE NUT PATTERN

Drop Forged—Selected Alloy Steel—Chrome Plated



Accurately broached. Carefully heat treated. Finished in chrome plate. Wrench heads buffed bright.

Wrenches plainly stamped with catalog number and nominal opening.

Especially designed for use over tubing and pipe in close quarters.

Will not damage soft brass flare nuts.

Particularly useful for refrigeration, air conditioning, aircraft service work.

No.	Nominal Opening Inches	HEAD		Slot Opening, In.	Approx. Overall Length Inches	Approx. Weight Lb.
		Diameter Inches	Depth Inches			
4112	3/8	25/32	5/16	19/64	6 3/8	.08
4114	7/16	55/64	11/32	23/64	6 7/16	.13
4116	1/2	15/16	7/16	25/64	6 3/4	.13
4118	9/16	13/64	7/16	29/64	6 3/4	.25
4120	5/8	17/64	15/32	33/64	7 1/16	.33
4122	11/16	113/64	1/2	37/64	7 1/8	.33
4124	3/4	19/32	9/16	41/64	7 3/8	.50
4126	13/16	129/64	5/8	45/64	7 7/16	.67
4128	7/8	17/16	5/8	45/64	7 3/4	.67
4130	15/16	1 1/2	5/8	49/64	7 3/4	1.00
4132	1	1 19/32	11/16	49/64	7 13/16	1.00
4134	1 1/16	1 13/64	3/4	53/64	7 7/8	1.25
4136	1 1/8	1 3/4	25/32	57/64	7 7/8	1.25
4138	1 3/16	1 27/32	13/16	61/64	7 29/32	1.25

For list of other tools and accessories for American Standard Bolts, Nuts and Cap Screws

ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

Drop Forged—Selected Alloy Steel—Chrome Plated

Accurately broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate. Heads buffed bright and plainly stamped with catalog number and nominal opening.

Thin head walls permit use where clearance is limited.

Double hexagon (12-point) openings permit nut to be rotated where swing is limited to a 30° arc.

All openings are slightly larger than nominal sizes to allow for proper clearance.

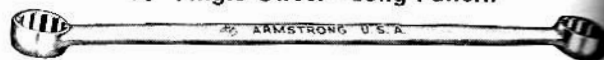
Wrenches with Whitworth openings available on special order.

15° Angle Offset—Short Pattern



No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approximate Weight Lb.
6723	$\frac{3}{8}$ & $\frac{7}{16}$	4 $\frac{1}{2}$	.08
6725	$\frac{7}{16}$ & $\frac{1}{2}$	5 $\frac{1}{2}$	.11
6725-A	$\frac{7}{16}$ & $\frac{9}{16}$	5 $\frac{1}{2}$	.14
6725-B	$\frac{1}{2}$ & $\frac{9}{16}$	5 $\frac{1}{2}$	.14
6025	$\frac{1}{2}$ & $\frac{19}{32}$	5 $\frac{1}{2}$	.14
6727	$\frac{9}{16}$ & $\frac{5}{8}$	6	.18

15° Angle Offset—Long Pattern



The 15° angle offset design provides greater clearance at handle end yet retains steady grip of straight wrench.

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
7723	$\frac{3}{8}$ & $\frac{7}{16}$	7 $\frac{3}{8}$	.19
7725	$\frac{7}{16}$ & $\frac{1}{2}$	7 $\frac{3}{4}$	.25
7725-A	$\frac{7}{16}$ & $\frac{9}{16}$	8 $\frac{1}{4}$	.25
7725-B	$\frac{1}{2}$ & $\frac{9}{16}$	8 $\frac{1}{4}$	.25
7025	$\frac{1}{2}$ & $\frac{19}{32}$	8 $\frac{1}{4}$	.38
7727	$\frac{9}{16}$ & $\frac{5}{8}$	9 $\frac{1}{4}$	.38
7027	$\frac{19}{32}$ & $\frac{11}{16}$	10 $\frac{1}{2}$	.51
7727-A	$\frac{5}{8}$ & $\frac{11}{16}$	10 $\frac{1}{2}$	.50
7729	$\frac{5}{8}$ & $\frac{3}{4}$	10 $\frac{1}{2}$	.50
7029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.51
7029	$\frac{11}{16}$ & $\frac{25}{32}$	11	.51
7729-A	$\frac{3}{4}$ & $\frac{25}{32}$	12	.56
7030	$\frac{11}{16}$ & $\frac{7}{8}$	12	.56
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12	.56
7031-B	$\frac{25}{32}$ & $\frac{13}{16}$	12 $\frac{3}{4}$	.66
7031	$\frac{25}{32}$ & $\frac{7}{8}$	12 $\frac{3}{4}$	.66
7731-B	$\frac{13}{16}$ & $\frac{7}{8}$	12 $\frac{3}{4}$	.88
7033-A	$\frac{7}{8}$ & $\frac{15}{16}$	13 $\frac{3}{4}$	.95
7733	$\frac{7}{8}$ & 1	13 $\frac{3}{4}$	.95
7033-C	$\frac{15}{16}$ & 1	13 $\frac{3}{4}$	.95
7034	$\frac{7}{8}$ & $\frac{11}{16}$	15 $\frac{1}{2}$	1.30
7034-A	$\frac{15}{16}$ & $\frac{11}{16}$	15 $\frac{1}{2}$	1.30
7735	1 & $\frac{11}{8}$	17 $\frac{1}{4}$	2.00
7735-A	$\frac{11}{16}$ & $\frac{11}{8}$	17 $\frac{1}{4}$	2.00
7037	$\frac{11}{16}$ & $\frac{11}{4}$	17 $\frac{1}{4}$	1.80
7037-A	$\frac{11}{8}$ & $\frac{13}{16}$	17 $\frac{1}{4}$	1.80
7039-B	$\frac{11}{4}$ & $\frac{13}{16}$	19	2.40
7039	$\frac{11}{4}$ & $\frac{13}{16}$	19	2.40
7039-A	$\frac{13}{16}$ & $\frac{11}{2}$	19	2.40
7040-B	$\frac{13}{16}$ & $\frac{11}{2}$	21	5.61
7041	$\frac{13}{16}$ & $\frac{13}{8}$	21	5.59
7742-B	$\frac{11}{2}$ & $\frac{111}{16}$	21	5.59

ARMSTRONG RATCHETING BOX WRENCHES

ARMSTRONG Ratcheting Box Wrenches permit quick easy turning of hard-to-get-at nuts. Made from selected steel and chrome plated, they are accurately broached to assure a clean fit. Ratcheting action is reversed by merely inverting the wrench. All critical parts are heat treated for safety and long wear.



No.	Nominal Openings	Overall Length Inches	Weight Each Lbs.
RB-810	$\frac{1}{4}$ & $\frac{9}{16}$ 6 Pt.	4 $\frac{1}{4}$	.13
RB-1214	$\frac{3}{8}$ & $\frac{7}{16}$ 6 Pt.	5 $\frac{1}{2}$	.19
RB-1618	$\frac{1}{2}$ & $\frac{9}{16}$ 6 Pt.	6 $\frac{3}{4}$	.42
RB-2022	$\frac{5}{8}$ & $\frac{11}{16}$ 12 Pt.	8	.67
RB-2024	$\frac{5}{8}$ & $\frac{3}{4}$ 12 Pt.	8	.67
RB-2428	$\frac{3}{4}$ & $\frac{7}{8}$ 12 Pt.	9 $\frac{1}{4}$	.75

See chart, page 74 listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

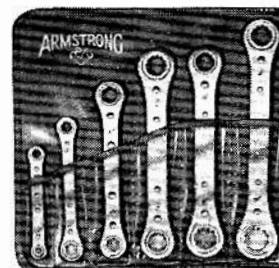
Set No. RB-3R

Contents: Three ratcheting box wrenches as follows in plastic roll No. R-25; Nos. RB-810, RB-1214, RB-1618. Approximate weight, .75 lb.



Set No. RB-6R

Contents: Six ratcheting box wrenches as follows in plastic roll No. R-3; Nos. RB-810, RB-1214, RB-1618, RB-2022, RB-2024 and RB-2428. Approximate weight, 2.90 lbs.





ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

45° Angle Double Offset
Drop Forged—Selected Alloy Steel
Chrome Plated

Accurately broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate. Heads buffed bright and plainly stamped with catalog No. and nominal opening. Thin head walls permit use where clearance is limited.

Double hexagon (12-point) openings permit nut to be rotated where swing is limited to a 30° arc. (Miniature pattern wrenches have six point openings.) All openings are slightly larger than nominal sizes to allow for proper clearance. Wrenches with Whitworth openings are available on special order.

45° Angle—Miniature Pattern



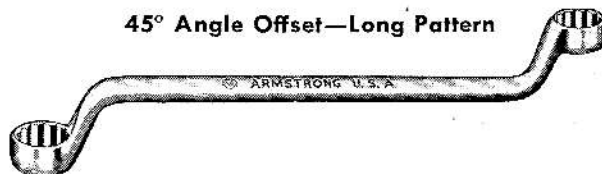
No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lbs.
1150	$\frac{3}{16}$ & $\frac{13}{64}$	$2\frac{7}{8}$	.02
1151	$\frac{7}{32}$ & $\frac{15}{64}$	$3\frac{1}{8}$	.03
1152	$\frac{1}{4}$ & $\frac{9}{32}$	$3\frac{3}{8}$	.04
1153	$\frac{5}{16}$ & $\frac{11}{32}$	$3\frac{3}{4}$	.06

45° Angle Offset—Short Pattern



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approximate Weight Lb.
9723	$\frac{3}{8}$ & $\frac{3}{16}$	$4\frac{1}{2}$	.10
9725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$	.19
9725-A	$\frac{7}{16}$ & $\frac{9}{16}$	$5\frac{1}{2}$	.22
9725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$5\frac{1}{2}$	.22
9025	$\frac{1}{2}$ & $\frac{19}{32}$	$5\frac{1}{2}$	.22
9727	$\frac{9}{16}$ & $\frac{5}{8}$	6	.29
9728-A	$\frac{5}{8}$ & $\frac{11}{16}$	6	.29
9729-A	$\frac{11}{16}$ & $\frac{3}{4}$	7	.38

45° Angle Offset—Long Pattern



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.
8021	$\frac{5}{16}$ & $\frac{13}{32}$	$7\frac{3}{4}$	.19
8723	$\frac{3}{8}$ & $\frac{3}{16}$	$7\frac{3}{4}$	.26
8023	$\frac{13}{32}$ & $\frac{1}{2}$	$8\frac{1}{4}$	.31
8725	$\frac{7}{16}$ & $\frac{1}{2}$	$8\frac{1}{4}$	.37
8725-A	$\frac{7}{16}$ & $\frac{9}{16}$	$8\frac{3}{4}$	.43
8725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$8\frac{3}{4}$	.43
8025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{3}{4}$	.43
8727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{3}{4}$	.59
8027	$\frac{19}{32}$ & $\frac{11}{16}$	11	.84
8727-A	$\frac{5}{8}$ & $\frac{11}{16}$	11	.80
8729	$\frac{5}{8}$ & $\frac{3}{4}$	11	.80
8029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.84
8029	$\frac{11}{16}$ & $\frac{25}{32}$	11	.84
8729-A	$\frac{3}{4}$ & $\frac{25}{32}$	$12\frac{1}{2}$	1.00
8030	$\frac{11}{16}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
8731	$\frac{3}{4}$ & $\frac{13}{16}$	$12\frac{1}{2}$	1.00
8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
8031-B	$\frac{25}{32}$ & $\frac{13}{16}$	$12\frac{1}{2}$	1.00
8031	$\frac{25}{32}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
8731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$12\frac{1}{2}$	1.00
8033-A	$\frac{7}{8}$ & $\frac{15}{16}$	$14\frac{1}{2}$	1.14
8733	$\frac{7}{8}$ & 1	$14\frac{1}{2}$	1.14
8033-C	$\frac{15}{16}$ & 1	$14\frac{1}{2}$	1.14
8034	$\frac{7}{8}$ & $\frac{11}{16}$	$15\frac{1}{2}$	1.30
8034-A	$\frac{15}{16}$ & $\frac{11}{16}$	$15\frac{1}{2}$	1.30
8735	1 & $\frac{11}{8}$	17	2.30
8735-A	$\frac{11}{16}$ & $\frac{11}{8}$	17	2.30
8037	$\frac{11}{16}$ & $1\frac{1}{4}$	17	2.10
8037-A	$\frac{11}{8}$ & $\frac{19}{16}$	19	3.30
8039-B	$1\frac{1}{4}$ & $\frac{15}{16}$	19	3.30
8039	$1\frac{1}{4}$ & $\frac{15}{16}$	19	3.30
8039-A	$\frac{15}{16}$ & $1\frac{1}{2}$	19	3.30

45° Angle Offset—Long Pattern, Heavy Duty Gray Enamel Finish



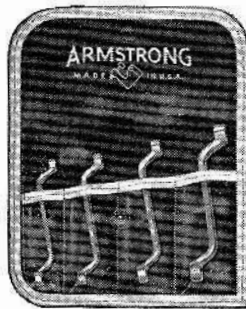
No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.
8040-B	$1\frac{1}{16}$ & $1\frac{1}{2}$	21	6.26
8041	$1\frac{1}{16}$ & $1\frac{9}{16}$	23	5.70
8742-B	$1\frac{1}{2}$ & $1\frac{11}{16}$	23	5.79
8045	$1\frac{13}{16}$ & 2	25	8.49
8049	$2\frac{3}{16}$ & $2\frac{3}{8}$	27	10.23
8053	$2\frac{7}{16}$ & $2\frac{3}{4}$	30	14.69



ARMSTRONG ARMALLOY BOX SOCKET WRENCH SETS

15° Angle, Offset Pattern and 45° Angle, Double Offset Pattern
Drop Forged—Selected Alloy Steel
Chrome Plated

Set No. 1154-R
45° Angle, Offset—
Miniature Pattern



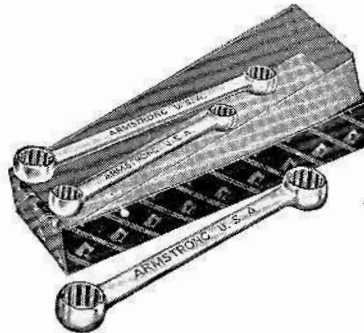
Four wrenches with openings $\frac{3}{16}$ to $\frac{11}{32}$ ".

Set No. 1154-R, in Plastic Roll No. R-27. Approx. weight, .19 lb.

Set No. 1154-C, in cardboard box, Approx. weight, .19 lb.

No.	Nominal Openings Inches	Approximate Extreme Length, in.	Approx. Weight Lbs.
1150	$\frac{3}{16}$ & $\frac{13}{64}$	$2\frac{7}{8}$	.02
1151	$\frac{7}{32}$ & $\frac{15}{64}$	$3\frac{1}{8}$	.03
1152	$\frac{1}{4}$ & $\frac{9}{32}$	$3\frac{3}{8}$	.04
1153	$\frac{5}{16}$ & $\frac{11}{32}$	$3\frac{3}{4}$	.06

Set No. 6703-C
15° Angle, Offset—Short Pattern



Three wrenches with openings $\frac{3}{8}$ to $\frac{5}{8}$ ".

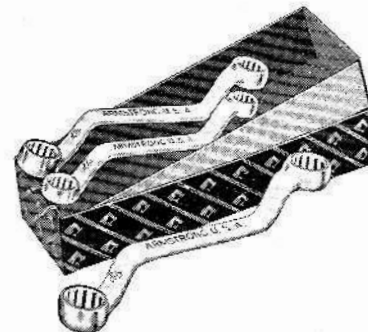
Furnished in cardboard box.

Approximate weight, .5 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
6723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{2}$
6725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$
6727	$\frac{9}{16}$ & $\frac{5}{8}$	6

Set No. 9703-C
45° Angle, Double Offset—
Short Pattern



Three wrenches with openings $\frac{3}{8}$ to $\frac{5}{8}$ ".

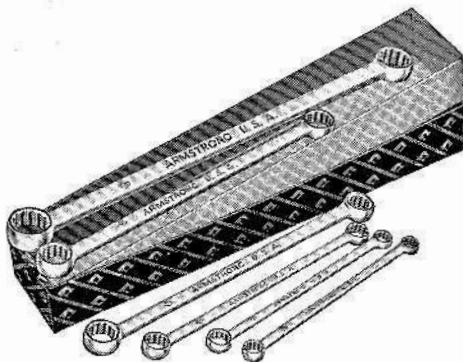
Furnished in cardboard box.

Approximate weight, .5 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
9723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{2}$
9725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$
9727	$\frac{9}{16}$ & $\frac{5}{8}$	6

Set No. 7006-C
15° Angle, Offset—Long Pattern



Six wrenches with openings $\frac{3}{8}$ to 1".
No duplications.

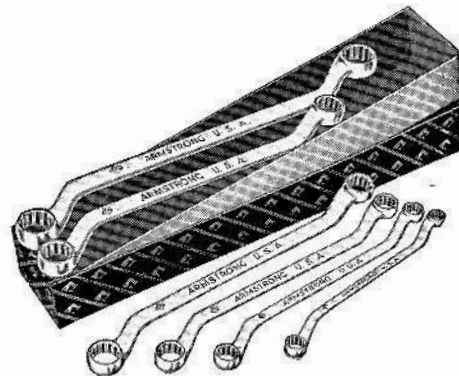
Furnished in cardboard box.

Approximate weight, 2.75 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
7723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{8}$
7025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{1}{4}$
7727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{1}{4}$
7029	$\frac{11}{16}$ & $\frac{25}{32}$	11
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12
7033-C	$\frac{15}{16}$ & 1	$13\frac{3}{4}$

Set No. 8006-C
45° Angle, Double Offset—Long Pattern



Six wrenches with openings $\frac{3}{8}$ to 1".
No duplications.

Furnished in cardboard box.

Approximate weight, 4.25 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
8723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{4}$
8025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{3}{4}$
8727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{3}{4}$
8029	$\frac{11}{16}$ & $\frac{25}{32}$	11
8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$12\frac{1}{2}$
8033-C	$\frac{15}{16}$ & 1	$14\frac{1}{2}$

ARMSTRONG WRENCHES

ARMALLOY STRIKING FACE BOX

45° Angle, Offset Pattern
Double Hexagon (12-Point) Opening
Drop Forged—Selected Alloy Steel



Accurately broached. Smoothly burnished.
Carefully heat treated. Finished in cadmium plate.
Plainly stamped with catalog number and nominal opening.

This wrench is designed for rugged service in close quarters where the use of a hammer or sledge is required to set or loosen a nut.

All openings are broached slightly larger than nominal sizes listed to allow for proper clearance.

ARMALLOY HEAVY STRIKING FACE BOX

7½° Angle
Double Hexagon (12-Point) Opening
Drop Forged—Selected Alloy Steel



Accurately broached. Smoothly burnished.
Carefully heat treated. Finished in cadmium plate. Heads bright. Plainly stamped with catalog number and nominal opening.

Designed for extra rugged service in close quarters where large nuts must be set up tight, or frozen nuts loosened. Heads are extra thick to afford extra strength and full bearing in extreme service.

No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.	No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diam. Inches					Thickness Inches	Outside Diam. Inches	
8807	1 1/16	10 1/2	1 3/16	1 27/32	2.15	.....	...	...	...	...	...
8807-A	1 1/8	10 1/2	1 3/16	1 27/32	2.15	.....	...	...	...	...	...
8808	1 1/4	11	1 7/8	2 3/32	2.55	SFH-1808	1 1/4	7	1 3/16	2 1/16	1.36
8808-A	1 3/16	11	1 7/8	2 3/32	2.55	SFH-1808-A	1 3/16	7	1 3/16	2 1/16	1.36
8809	1 1/16	11 1/2	1	2 3/8	3.63	SFH-1809	1 1/16	8	1 3/16	2 3/8	2.06
8809-A	1 1/2	11 1/2	1	2 3/8	3.63	SFH-1809-A	1 1/2	8	1 5/16	2 3/8	2.06
8810	1 5/8	12	1 1/16	2 5/8	3.88	SFH-1810	1 5/8	9	1 1/8	2 5/8	3.00
8810-A	1 11/16	12	1 1/16	2 5/8	3.88	SFH-1810-A	1 11/16	9	1 1/8	2 5/8	3.00
8811	1 13/16	12 1/2	1 1/8	2 29/32	5.38	SFH-1811	1 13/16	10	1 1/4	2 15/16	3.87
8811-A	1 7/8	12 1/2	1 1/8	2 29/32	5.38	SFH-1811-A	1 7/8	10	1 1/4	2 15/16	3.87
8812	2	13	1 1/4	3 3/32	5.50	SFH-1812	2	11	1 3/8	3 1/4	5.53
8813	2 3/16	13 1/2	1 3/8	3 15/32	7.18	SFH-1813	2 3/16	12	1 1/2	3 1/2	6.77
8813-A	2 1/4	13 1/2	1 3/8	3 15/32	7.18	SFH-1813-A	2 1/4	12	1 1/2	3 1/2	6.77
8814	2 3/8	14	1 1/2	3 23/32	7.91	SFH-1814	2 3/8	13	1 5/8	3 3/4	8.19
8815	2 9/16	14 1/2	1 5/8	3 29/32	9.69	SFH-1815	2 9/16	14	1 3/4	4 1/8	10.70
8815-A	2 5/8	14 1/2	1 5/8	3 29/32	9.69	SFH-1815-A	2 5/8	14	1 3/4	4 1/8	10.78
8816	2 3/4	15	1 3/4	4 1/2	10.78	SFH-1816	2 3/4	15	1 7/8	4 9/16	13.50
8816-B	2 15/16	16	1 7/8	4 21/32	10.78	.....	...	...	...	...	...
8817-A	3	16 1/2	2	4 15/16	11.87	SFH-1817-A	3	17	2	4 13/16	18.80
8817	3 1/8	16 1/2	2	4 15/16	11.87	SFH-1817	3 1/8	17	2	4 13/16	18.80

ARMSTRONG WRENCHES

HI-TEN REGULAR STRIKING FACE BOX

15° Angle, Hexagon (6-Point) Opening
Drop Forged—Selected High Carbon Steel—Gray Enameled



Accurately broached. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Heads ground bright. Plainly stamped with catalog number and nominal opening. Especially designed for heavy work in close quarters where large nuts must be set up, or frozen nuts loosened.

No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Wt. Lb.	No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Wt. Lb.
			Thick- ness Inches	Outside Diam. Inches					Thick- ness Inches	Outside Diam. Inches	
SF-818-A	3 $\frac{3}{8}$	18	1 $\frac{1}{2}$	5 $\frac{1}{4}$	20.17	SF-819-AC	4 $\frac{1}{8}$	20	1 $\frac{3}{4}$	6 $\frac{1}{2}$	27.93
SF-818	3 $\frac{1}{2}$	18	1 $\frac{1}{2}$	5 $\frac{1}{4}$	20.17	SF-819-A	4 $\frac{1}{4}$	20	1 $\frac{3}{4}$	6 $\frac{1}{2}$	27.93
SF-819B	3 $\frac{3}{4}$	19	1 $\frac{5}{8}$	5 $\frac{7}{8}$	23.60	SF-820-B	4 $\frac{1}{2}$	21	1 $\frac{7}{8}$	7	30.80
SF-819	3 $\frac{7}{8}$	19	1 $\frac{5}{8}$	5 $\frac{7}{8}$	23.60	SF-820	4 $\frac{5}{8}$	21	1 $\frac{7}{8}$	7	30.80

See chart page 74 listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

REGULAR PATTERN BOX

Single Head

HI-TEN HEXAGON BOX

15° Angle—6-Point

Drop Forged—Selected High Carbon Steel
Gray Enameled



Accurately broached. Smoothly burnished.

Carefully hardened and tempered.

Finished in gray baked-on enamel.

Heads ground bright, stamped with catalog number and nominal opening.

These wrenches can be furnished bent to 45° or 90° angle, on special order, as illustrated below.



45° Bent Handle

ARMALLOY DOUBLE HEXAGON BOX

7½° Angle—12-Point

Drop Forged—Selected Alloy Steel
Chrome Plated



Accurately broached. Smoothly burnished. Carefully hardened and tempered. Chrome plated.

Heads faces buffed bright, stamped with catalog number and nominal opening.

Slim head wall permits use where clearance limited. Double hexagon (12-point) opening permit nut to be rotated where swing is limited to 15°.



90° Bent Handle

Wrenches with Whitworth openings available on special order.

Hi-Ten Hexagon Box Wrenches

15° Angle—6-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diam. Inches	
801-A	7/16	4	17/64	27/32	.10
801	1/2	4	17/64	27/32	.10
802-A	9/16	4 7/8	5/16	61/64	.17
802	19/32	4 7/8	5/16	61/64	.17
803-A	5/8	5 7/8	23/64	1 13/32	.25
803	1 1/16	5 7/8	23/64	1 13/32	.25
804-A	3/4	6 7/8	13/32	1 1/4	.38
804	25/32	6 7/8	13/32	1 1/4	.38
805-A	13/16	7 3/4	29/64	1 23/64	.52
805	7/8	7 3/4	29/64	1 23/64	.52
806	15/16	8 3/4	1/2	1 35/64	.69
806-B	1	8 3/4	1/2	1 35/64	.69
807	1 1/16	9 7/8	9/16	1 25/32	.80
807-A	1 1/8	9 7/8	9/16	1 25/32	.80
808	1 1/4	11 1/2	9/16	2 1/16	1.40
808-A	1 5/16	11 1/2	9/16	2 1/16	1.40
809	1 1/2	13 3/8	21/32	2 3/8	1.75
809-A	1 1/2	13 3/8	21/32	2 3/8	1.75
810	1 5/8	15 1/4	3/4	2 5/8	2.90
810-A	1 11/16	15 1/4	3/4	2 5/8	2.90
811	1 13/16	17	13/16	2 29/32	3.10
811-A	1 7/8	17	13/16	2 29/32	3.10
812	2	19	1 1/16	3 1/4	4.30
812-A	2 1/16	19	1 1/16	3 1/4	4.30
813	2 3/16	18 1/4	1	3 11/16	5.50
813-A	2 1/4	18 1/4	1	3 11/16	5.37
814	2 3/8	20 3/4	1 1/16	4 1/2	9.37
816	2 3/4	27 1/2	1 1/4	4 1/2	11.63

Arm Alloy Double Hexagon Box Wrenches

7½° Angle—12-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diam. Inches	
1801-A	7/16	4	17/64	27/32	.11
1801	1/2	4	17/64	27/32	.11
1802-A	9/16	4 7/8	5/16	61/64	.17
1802	19/32	4 7/8	5/16	61/64	.17
1803-A	5/8	5 7/8	23/64	1 13/32	.25
1803	1 1/16	5 7/8	23/64	1 13/32	.25
1804-A	3/4	6 7/8	13/32	1 1/4	.38
1804	25/32	6 7/8	13/32	1 1/4	.38
1805-A	13/16	7 3/4	29/64	1 23/64	.52
1805	7/8	7 3/4	29/64	1 23/64	.52
1806	15/16	8 3/4	1/2	1 35/64	.69
1806-B	1	8 3/4	1/2	1 35/64	.69
1807	1 1/16	9 7/8	9/16	1 25/32	.89
1807-A	1 1/8	9 7/8	9/16	1 25/32	.89
1808	1 1/4	11 1/2	9/16	2 1/16	1.40
1808-A	1 5/16	11 1/2	9/16	2 1/16	1.40
1809	1 1/2	13 3/8	21/32	2 3/8	1.75
1809-A	1 1/2	13 3/8	21/32	2 3/8	1.75
1810	1 5/8	15 1/4	3/4	2 5/8	2.90
1810-A	1 11/16	15 1/4	3/4	2 5/8	2.90
1811	1 13/16	17	13/16	2 29/32	3.10
1811-A	1 7/8	17	13/16	2 29/32	3.10
1812	2	19	1 1/16	3 1/4	4.30
1812-A	2 1/16	19	1 1/16	3 1/4	4.30
1813	2 3/16	18 1/4	1	3 11/16	5.50
1813-A	2 1/4	18 1/4	1	3 11/16	5.37
1814	2 3/8	20 3/4	1 1/16	4 1/2	9.37

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

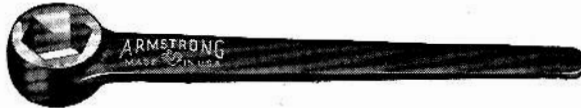
HEAVY PATTERN BOX

Single Head

HI-TEN HEXAGON BOX

15° Angle—6-Point

Drop Forged—Selected High Carbon Steel
Gray Enameled



Accurately broached. Smoothly burnished.

Carefully hardened and tempered.

Finished in gray baked-on enamel.

Heads ground bright. Wrench plainly stamped with catalog number and nominal opening.

Designed for severe service where extra strength is required.

ARMALLOY DOUBLE HEXAGON BOX

7½° Angle—12-Point

Drop Forged—Selected Alloy Steel
Chrome Plated



Accurately broached. Smoothly burnished.

Carefully hardened and tempered.

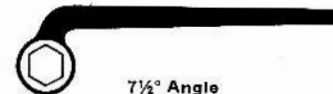
Finished in cadmium plate. Wrench plainly stamped with catalog number and nominal opening.

Especially adapted for working in close quarters. Slim head wall and double hexagon opening permits rotation of nut when limited to a swing of only 15°.

These wrenches can be furnished bent to 45° or 90° angle, on special order, as illustrated below.



15° Angle
45° Bent Handle



7½° Angle
90° Bent Handle

Wrenches with Whitworth openings available on special order.

Hi-Ten Hexagon Box Wrenches

15° Angle—6-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches	
H808	1¼	11½	13/16	2¼	1.6
H808-A	1⅜	11½	13/16	2¼	1.6
H809	1⅞	13⅞	15/16	2⅜	2.3
H809-A	1½	13⅞	15/16	2⅜	2.3
H810	1⅝	15¼	1⅞	2⅝	3.1
H810-A	1⅞	15¼	1⅞	2⅝	3.1
H811	1⅞	17	1¾	2⅝	3.8
H811-A	1⅞	17	1¾	2⅝	3.8
H812	2	19	1⅞	3¼	5.4
H813	2⅞	21	1½	3½	6.5
H813-A	2¼	21	1½	3½	6.5
H814	2⅞	23	1⅝	3¾	7.8
H815	2⅞	25	1¾	4⅞	10.3
H815-A	2⅞	25	1¾	4⅞	10.3
H816	2¾	27	1⅞	4⅞	12.5
H817-A	3	30	2	4⅞	16.3
H817	3⅞	30	2	4⅞	16.3

Armaloy Double Hexagon Box Wrenches

7½° Angle—12-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches	
H1808	1¼	11½	13/16	2¼	1.6
H1808-A	1⅜	11½	13/16	2¼	1.6
H1809	1⅞	13⅞	15/16	2⅜	2.3
H1809-A	1½	13⅞	15/16	2⅜	2.3
H1810	1⅝	15¼	1⅞	2⅝	3.1
H1810-A	1⅞	15¼	1⅞	2⅝	3.1
H1811	1⅞	17	1¾	2⅝	3.8
H1811-A	1⅞	17	1¾	2⅝	3.8
H1812	2	19	1⅞	3¼	5.4
H1813	2⅞	21	1½	3½	6.5
H1813-A	2¼	21	1½	3½	6.5
H1814	2⅞	23	1⅝	3¾	7.8
H1815	2⅞	25	1¾	4⅞	10.3
H1815-A	2⅞	25	1¾	4⅞	10.3
H1816	2¾	27	1⅞	4⅞	12.5
H1817-A	3	30	2	4⅞	16.3
H1817	3⅞	30	2	4⅞	16.3

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

Stub End Type for Tubular Handles
Double Hexagon (12-Point) Openings
Drop Forged—Selected Alloy Steel
Cadmium Plated

Accurately broached. Smoothly burnished. Carefully heat treated. Finished in cadmium plate. Each wrench plainly stamped with catalog number and nominal opening. All openings broached slightly larger than nominal sizes listed to allow for proper clearance. Wrenches available in both straight and 45° angle offset patterns.

Equipped with improved handle stop and positive locking device enabling one tubular handle to be used with various sizes and styles of wrenches. Single or double end wrench of size and style required can be quickly assembled.

Wrenches with special openings available on special order.

Straight Pattern



45° Angle Offset



No.	Nominal Opening Inches	For Handle No.	Length, Inches		Approx. Weight Lb. Wrench Only
			Wrench less Handle	Wrench with Handle	
S-34	1 $\frac{1}{16}$	M-280	9 $\frac{1}{16}$	28 $\frac{9}{16}$	.81
S-36	1 $\frac{1}{8}$	M-280	9 $\frac{5}{8}$	29 $\frac{1}{8}$	.87
S-40	1 $\frac{1}{4}$	M-280	9 $\frac{13}{16}$	29 $\frac{13}{16}$	1.25
S-42	1 $\frac{3}{8}$	M-280	10 $\frac{1}{4}$	29 $\frac{3}{4}$	1.25
S-44	1 $\frac{3}{4}$	M-280	10 $\frac{1}{2}$	30	1.50
S-46	1 $\frac{7}{16}$	M-280	10 $\frac{13}{16}$	30 $\frac{3}{16}$	1.50
S-48	1 $\frac{1}{2}$	M-280	11 $\frac{1}{8}$	30 $\frac{3}{8}$	1.75
S-52	1 $\frac{5}{8}$	M-320	12 $\frac{1}{4}$	35 $\frac{3}{4}$	2.25
S-54	1 $\frac{11}{16}$	M-320	12 $\frac{7}{16}$	35 $\frac{13}{16}$	2.25
S-56	1 $\frac{3}{4}$	M-320	12 $\frac{9}{16}$	36 $\frac{1}{16}$	2.25
S-58	1 $\frac{13}{16}$	M-320	12 $\frac{7}{8}$	36 $\frac{3}{8}$	2.50
S-60	1 $\frac{7}{8}$	M-320	13 $\frac{1}{8}$	36 $\frac{5}{8}$	2.75
S-64	2	M-320	13 $\frac{1}{4}$	36 $\frac{3}{4}$	3.00
S-70	2 $\frac{3}{16}$	M-320	13 $\frac{9}{16}$	37 $\frac{1}{16}$	3.00
S-72	2 $\frac{1}{4}$	M-320	13 $\frac{5}{8}$	37 $\frac{3}{8}$	3.50
S-76	2 $\frac{3}{8}$	M-360	13 $\frac{13}{16}$	44 $\frac{1}{8}$	5.00
S-78	2 $\frac{7}{16}$	M-360	13 $\frac{15}{16}$	44 $\frac{1}{2}$	4.75
S-82	2 $\frac{9}{16}$	M-360	14 $\frac{3}{32}$	44 $\frac{9}{32}$	4.75
S-84	2 $\frac{5}{8}$	M-360	14 $\frac{1}{16}$	44 $\frac{1}{2}$	5.25
S-88	2 $\frac{3}{4}$	M-360	14 $\frac{3}{16}$	44 $\frac{3}{8}$	5.25
S-90	2 $\frac{13}{16}$	M-360	14 $\frac{1}{4}$	44 $\frac{1}{2}$	6.00
S-94	2 $\frac{15}{16}$	M-360	14 $\frac{9}{32}$	44 $\frac{15}{32}$	6.00
S-96	3	M-360	14 $\frac{1}{2}$	44 $\frac{15}{16}$	6.00
S-98	3 $\frac{1}{8}$	M-360	14 $\frac{13}{32}$	44 $\frac{19}{32}$	6.00
S-108	3 $\frac{3}{8}$	M-360	14 $\frac{1}{2}$	44 $\frac{11}{16}$	6.00
S-112	3 $\frac{1}{2}$	M-420	18 $\frac{19}{32}$	53 $\frac{1}{32}$	8.50

No.	Nominal Opening Inches	For Handle No.	Length, Inches		Approx. Weight Lb. Wrench Only
			Wrench less Handle	Wrench with Handle	
O-34	1 $\frac{1}{16}$	M-280	8 $\frac{9}{16}$	28 $\frac{1}{16}$	.94
O-36	1 $\frac{1}{8}$	M-280	8 $\frac{13}{16}$	28 $\frac{7}{16}$	.94
O-40	1 $\frac{1}{4}$	M-280	9 $\frac{1}{4}$	28 $\frac{3}{4}$	1.25
O-42	1 $\frac{3}{8}$	M-280	9 $\frac{7}{16}$	28 $\frac{13}{16}$	1.25
O-44	1 $\frac{3}{4}$	M-280	9 $\frac{15}{16}$	29 $\frac{7}{16}$	1.50
O-46	1 $\frac{7}{16}$	M-280	10 $\frac{3}{8}$	29 $\frac{7}{8}$	1.50
O-48	1 $\frac{1}{2}$	M-280	11 $\frac{1}{16}$	30 $\frac{9}{16}$	1.75
O-52	1 $\frac{5}{8}$	M-320	11 $\frac{5}{16}$	34 $\frac{13}{16}$	2.25
O-54	1 $\frac{11}{16}$	M-320	11 $\frac{13}{16}$	35 $\frac{5}{16}$	2.25
O-56	1 $\frac{3}{4}$	M-320	11 $\frac{13}{16}$	35 $\frac{5}{16}$	2.25
O-58	1 $\frac{13}{16}$	M-320	12 $\frac{3}{16}$	35 $\frac{11}{16}$	2.50
O-60	1 $\frac{7}{8}$	M-320	12 $\frac{1}{2}$	36	2.75
O-64	2	M-320	12 $\frac{3}{4}$	36 $\frac{1}{4}$	3.00
O-70	2 $\frac{3}{16}$	M-320	12 $\frac{13}{16}$	36 $\frac{3}{16}$	3.00
O-72	2 $\frac{1}{4}$	M-320	13	36 $\frac{1}{2}$	3.50
O-76	2 $\frac{3}{8}$	M-360	13 $\frac{23}{32}$	43 $\frac{13}{16}$	5.00
O-78	2 $\frac{7}{16}$	M-360	13 $\frac{1}{2}$	43 $\frac{1}{2}$	4.75
O-82	2 $\frac{9}{16}$	M-360	13 $\frac{1}{2}$	43 $\frac{3}{8}$	4.75
O-84	2 $\frac{5}{8}$	M-360	13 $\frac{1}{2}$	43 $\frac{3}{8}$	5.25
O-88	2 $\frac{3}{4}$	M-360	13 $\frac{1}{2}$	43 $\frac{1}{8}$	5.25
O-90	2 $\frac{13}{16}$	M-360	13 $\frac{7}{8}$	43 $\frac{1}{2}$	6.00
O-94	2 $\frac{15}{16}$	M-360	13 $\frac{7}{8}$	43 $\frac{1}{2}$	6.00
O-96	3	M-360	13 $\frac{3}{4}$	43 $\frac{1}{2}$	6.00
O-98	3 $\frac{1}{8}$	M-360	14 $\frac{1}{4}$	43 $\frac{5}{8}$	6.00
O-108	3 $\frac{3}{8}$	M-360	14 $\frac{1}{4}$	43 $\frac{7}{8}$	6.00
O-112	3 $\frac{1}{2}$	M-420	18 $\frac{3}{4}$	50 $\frac{5}{8}$	8.50

SEAMLESS STEEL TUBULAR HANDLES



For use with above wrenches.

Handle No.	Approximate Extreme Length, Inches	Inside Diameter Inches	Outside Diameter Inches	Approximate Weight Lb.
*M-180	18	1 $\frac{1}{16}$	1 $\frac{7}{8}$	2.42
M-280	24	1 $\frac{7}{8}$	1 $\frac{1}{8}$	3.58
M-320	30	1	1 $\frac{1}{4}$	4.68
M-360	36	1 $\frac{1}{8}$	1 $\frac{7}{16}$	6.33
M-420	42	1 $\frac{5}{8}$	2	8.53

*Will be discontinued when present stock is depleted

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



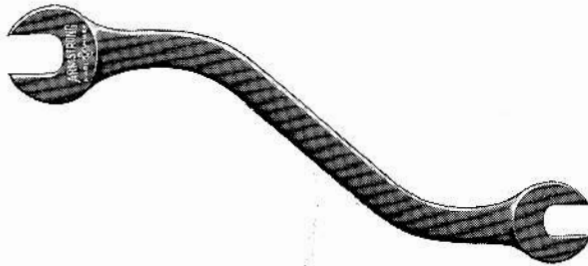
ARMSTRONG HI-TEN WRENCHES

CAR PATTERN

22½° Angle—Double Head

Long Leverage

Drop Forged—Selected High Carbon Steel



Accurately milled. Carefully hardened. Finished in Parco Lubrite.

Heads not ground bright but plainly stamped with catalog number and nominal openings.

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
367-A	5/8 & 13/16	12	1.5	378-A	1 1/16 & 1 5/8	22	5.00
367	1 1/16 & 7/8	12	1.5	379	1 1/2 & 1 11/16	22	5.00
370-C	13/16 & 7/8	19	3.0	382-A	1 5/8 & 1 13/16	23	5.75
370-A	13/16 & 1	19	3.0	382	1 11/16 & 1 7/8	23	5.75
370	7/8 & 1 1/16	19	3.0	383-A	1 7/8 & 2 1/16	24	6.75
370-B	1 & 1 1/8	19	3.0	383-B	1 7/8 & 2 1/4	24	6.75
372-A	1 1/16 & 1 1/4	20	3.5	385	1 13/16 & 2	24	6.75
373	1 1/8 & 1 5/16	20	3.5	389	2 & 2 3/8	25	9.00
376-A	1 1/4 & 1 7/16	21	4.0	389-B	2 3/16 & 2 3/8	25	9.00
376	1 5/16 & 1 1/2	21	4.0				

EXTRA LONG PATTERN

Straight Opening—Single Head

With Extra Long Round Handle

Drop Forged—Selected High Carbon Steel



Accurately milled. Carefully hardened.

Finished in Parco Lubrite.

Head not ground bright but plainly stamped with catalog number and nominal opening.

No.	Nominal Opening Milled Inches	For American Standard Heavy Nut (USS) Size Bolt Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
292	7/8	1 1/2	19	3.0
293	1 1/16	5/8	22	4.0
294	1 1/4	3/4	22	4.0
296	1 7/16	7/8	24	5.0
297	1 5/8	1	24	5.0

ALLIGATOR TYPE

Single End

Drop Forged—Selected High Carbon Steel



Teeth carefully milled, of uniform design.

Wrenches are finished in Parco Lubrite.

No.	Approx. Extreme Length Inches	Holds Pipe Inches	Holds Round Iron Inches	Approx. Weight Lb.
1	7 1/2	1/8 to 1/2	3/16 to 3/4	.50
2	9	1/4 to 3/4	1/16 to 1	1.00
2 1/2	12	3/8 to 1	5/8 to 1 1/4	1.75
3	15	1/2 to 1 1/4	3/4 to 1 1/2	3.00
3 1/2	18	3/4 to 1 1/2	1 to 1 3/4	4.00
4	21	1 to 2	1 1/4 to 2 1/2	7.50
4 1/2	24	1 1/4 to 2 1/2	1 1/2 to 3	9.75
5	27	1 1/2 to 3	2 1/4 to 3 1/2	13.00

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

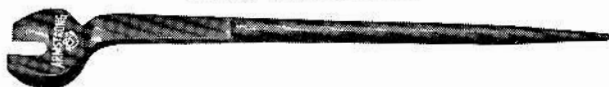
STRUCTURAL PATTERN

Straight Opening

HI-TEN

Drop Forged—Selected High Carbon Steel

Parco Lubrite Finish



ARMALLOY

Drop Forged—Selected Alloy Steel

Cadmium Plated



Accurately milled, carefully hardened and tempered, smoothly burnished. Handles are extra long and tapered for ease in lining up bolt holes, and are plainly stamped with catalog number and nominal opening. Offset head allows wrench handle to clear obstructions, enabling the user to keep wrench squarely on nut at all times.

All openings are milled slightly larger than nominal sizes listed to allow for proper clearance.

Wrenches with special openings or with Whitworth or Metric openings available on special order.

Hi-Ten Structural Wrenches

Armalooy Structural Wrenches

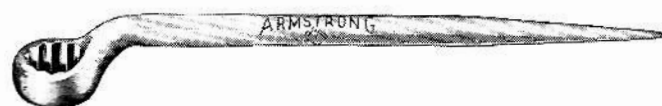
No.	Nominal Opening Inches	Approx. Extreme Length Inches	Thick- ness Head Inches	Handle Offset at Head Inches	Approx. Weight lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	Thick- ness Head Inches	Handle Offset at Head Inches	Approx. Weight Lb.
901-A	$7\frac{1}{16}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33	901	$7\frac{1}{2}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33
901-B	$9\frac{1}{16}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33	902	$9\frac{1}{2}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33
902	$19\frac{3}{32}$	$9\frac{1}{2}$	$1\frac{1}{32}$	$1\frac{3}{16}$	.33	903-A	$5\frac{5}{8}$	12	$2\frac{1}{16}$	$1\frac{3}{16}$	.75
903-A	$5\frac{5}{8}$	12	$2\frac{1}{16}$	$1\frac{3}{16}$	.75	903	$11\frac{1}{16}$	12	$2\frac{1}{16}$	$1\frac{3}{16}$	.75
904-A	$3\frac{3}{4}$	12	$2\frac{1}{16}$	$1\frac{3}{16}$	.75	904	$25\frac{3}{32}$	12	$2\frac{1}{16}$	$1\frac{3}{16}$	.75
905-A	$13\frac{1}{16}$	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25	905	$7\frac{7}{8}$	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25
905	$15\frac{1}{16}$	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25	906	$15\frac{1}{16}$	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25
906-B	1	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25	906-B	1	$14\frac{1}{2}$	$1\frac{1}{32}$	1	1.25
907	$11\frac{1}{16}$	17	$5\frac{5}{8}$	$1\frac{1}{8}$	2.00	907	$11\frac{1}{16}$	17	$5\frac{5}{8}$	$1\frac{1}{8}$	2.00
907-A	$11\frac{1}{8}$	17	$5\frac{5}{8}$	$1\frac{1}{8}$	2.00	907-A	$11\frac{1}{8}$	17	$5\frac{5}{8}$	$1\frac{1}{8}$	2.00
908	$11\frac{1}{4}$	19	$11\frac{1}{16}$	$1\frac{1}{4}$	3.25	908	$11\frac{1}{4}$	19	$11\frac{1}{16}$	$1\frac{1}{4}$	3.25
908-A	$19\frac{1}{16}$	19	$1\frac{1}{16}$	$1\frac{1}{4}$	3.25	908-A	$19\frac{1}{16}$	19	$1\frac{1}{16}$	$1\frac{1}{4}$	3.25
909	$17\frac{1}{16}$	21	$3\frac{3}{4}$	$1\frac{3}{16}$	4.25	909	$17\frac{1}{16}$	21	$3\frac{3}{4}$	$1\frac{3}{16}$	4.25
909-A	$11\frac{1}{2}$	21	$3\frac{3}{4}$	$1\frac{3}{16}$	4.25	909-A	$11\frac{1}{2}$	21	$3\frac{3}{4}$	$1\frac{3}{16}$	4.25
910	$15\frac{5}{8}$	23	$13\frac{1}{16}$	$1\frac{3}{8}$	5.88	910	$15\frac{5}{8}$	23	$13\frac{1}{16}$	$1\frac{3}{8}$	5.88
910-A	$11\frac{1}{16}$	23	$13\frac{1}{16}$	$1\frac{3}{8}$	5.88	910-A	$11\frac{1}{16}$	23	$13\frac{1}{16}$	$1\frac{3}{8}$	5.88
911	$11\frac{13}{16}$	25	1	$1\frac{1}{2}$	7.50	911	$11\frac{13}{16}$	25	1	$1\frac{1}{2}$	7.50
911-A	$17\frac{7}{8}$	25	1	$1\frac{1}{2}$	7.50	911-A	$17\frac{7}{8}$	25	1	$1\frac{1}{2}$	7.50
912	2	25	1	$1\frac{1}{2}$	7.50	912	2	25	1	$1\frac{1}{2}$	7.50

STRUCTURAL BOX PATTERN

Double Hexagon (12-Point) Opening

Drop Forged—Selected Alloy Steel

Cadmium Plated



Accurately broached. Smoothly burnished. Carefully hardened and tempered.

Finished in cadmium plate.

Wrench plainly stamped with catalog number and nominal opening.

Maximum clearance at the offset allows a full grip on the nut at all times.

Handles are long and tapered for ease in lining up bolt holes.

Wrenches with special openings are available on special order.

Approx. Extreme Length Inches	HEAD		Handle Offset at Head Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Handle Offset at Head Inches	Approx. Weight Lb.
	Thick- ness Inches	Outside Diam. Inches						Thick- ness Inches	Outside Diam. Inches		
2	$\frac{5}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	1.15	8910	$1\frac{5}{8}$	$21\frac{1}{2}$	$1\frac{1}{16}$	$21\frac{1}{2}$	$1\frac{5}{8}$	4.64
2	$\frac{5}{8}$	$1\frac{3}{8}$	$1\frac{1}{8}$	1.15	8910-A	$1\frac{11}{16}$	$21\frac{1}{2}$	$1\frac{1}{16}$	$21\frac{1}{2}$	$1\frac{5}{8}$	4.64
$21\frac{1}{2}$	$\frac{3}{4}$	$1\frac{9}{16}$	$1\frac{1}{4}$	1.43	8911	$1\frac{13}{16}$	23	$1\frac{1}{8}$	$23\frac{1}{4}$	$1\frac{11}{16}$	5.88
$21\frac{1}{2}$	$\frac{3}{4}$	$1\frac{9}{16}$	$1\frac{1}{4}$	1.43	8911-A	$1\frac{7}{8}$	23	$1\frac{1}{8}$	$23\frac{1}{4}$	$1\frac{11}{16}$	5.88
$2\frac{3}{4}$	$1\frac{13}{16}$	$1\frac{11}{16}$	$1\frac{5}{16}$	2.11	8912	2	$24\frac{1}{2}$	$1\frac{1}{4}$	3	$1\frac{13}{16}$	6.51
$2\frac{3}{4}$	$1\frac{13}{16}$	$1\frac{11}{16}$	$1\frac{5}{16}$	2.11	8913	$2\frac{3}{16}$	26	$1\frac{3}{8}$	$3\frac{3}{8}$	2	8.41
	$1\frac{7}{8}$	2	$1\frac{7}{16}$	2.51	8914	$2\frac{3}{8}$	28	$1\frac{1}{2}$	$3\frac{31}{32}$	$2\frac{1}{8}$	9.50
	$1\frac{7}{8}$	2	$1\frac{7}{16}$	2.51	8915	$2\frac{3}{16}$	29	$1\frac{11}{16}$	$3\frac{31}{32}$	$2\frac{1}{4}$	10.60
1	$2\frac{27}{32}$	$1\frac{11}{2}$	$1\frac{1}{2}$	3.84	8916	$2\frac{3}{4}$	29	$1\frac{3}{4}$	$4\frac{1}{8}$	$2\frac{3}{8}$	12.10
1	$2\frac{27}{32}$	$1\frac{11}{2}$	$1\frac{1}{2}$	3.84							

Art. page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

FACE SPANNER PATTERN

Drop Forged—Selected High Carbon Steel—Gray Enameled



Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel.

Pins are forged integral with wrench and are milled to exact sizes listed.

Wrenches with pins of smaller diameter or length can be furnished on special order.

No.	PINS			Span of Jaws in Clear Inches	Approx. Length from Center of Pins Inches	Approx. Wt. Lb.	No.	PINS			Span of Jaws in Clear Inches	Approx. Length from Center of Pins Inches	Approx. Wt. Lb.
	Distance C to C Inches	Diameter Milled Inches	Length Inches					Distance C to C Inches	Diameter Milled Inches	Length Inches			
418	1	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{11}{16}$	$4\frac{1}{2}$	.13	432	$2\frac{3}{4}$	$\frac{9}{32}$	$\frac{9}{32}$	$2\frac{3}{8}$	8	.67
420	$1\frac{1}{4}$	$\frac{7}{32}$	$\frac{7}{32}$	$\frac{7}{8}$	5	.17	434	3	$\frac{5}{16}$	$\frac{5}{16}$	$2\frac{1}{2}$	$8\frac{1}{2}$	.75
422	$1\frac{1}{2}$	$\frac{7}{32}$	$\frac{7}{32}$	$1\frac{1}{8}$	$5\frac{1}{2}$	.20	436	$3\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{16}$	$2\frac{3}{4}$	$9\frac{1}{8}$	.83
424	$1\frac{3}{4}$	$\frac{7}{32}$	$\frac{7}{32}$	$1\frac{3}{8}$	6	.25	438	$3\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$	3	$9\frac{3}{4}$	1.00
426	2	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{19}{32}$	$6\frac{1}{2}$	.33	440	$3\frac{3}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{3}{16}$	$10\frac{3}{8}$	1.13
428	$2\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{27}{32}$	7	.40	442	4	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{1}{16}$	11	1.50
430	$2\frac{1}{2}$	$\frac{9}{32}$	$\frac{9}{32}$	$2\frac{1}{32}$	$7\frac{1}{2}$	.50							

ADJUSTABLE FACE SPANNER PATTERN

Drop Forged—Selected High Carbon Steel—Gray Enameled

Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel.

Pins are forged integral with wrench and are milled.

Wrenches with pins of smaller diameter or length can be furnished on special order.



No.	Extreme Capacity Inches	Approximate Extreme Length Inches	Diameter of Pins Inches	Approx. Weight Lb.
482	2	$6\frac{3}{8}$	$\frac{3}{16}$	.41
483	3	$8\frac{1}{4}$	$\frac{1}{4}$	.76
484	4	$10\frac{3}{8}$	$\frac{5}{16}$	1.10

PIN SPANNER PATTERN

Drop Forged—Selected High Carbon Steel—Gray Enameled

Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel.

Pins forged integral with wrench and are milled to exact sizes listed.

Wrenches with pins of smaller diameter or length can be furnished on special order.



No.	For Circle Diameter Inches	Finished Diameter Pin Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	For Circle Diameter Inches	Finished Diameter Pin Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
452	1	$\frac{3}{16}$	4	.08	460	3	$\frac{5}{16}$	8	.50
453	$1\frac{1}{4}$	$\frac{13}{64}$	$4\frac{1}{2}$	.10	461	$3\frac{1}{4}$	$\frac{21}{64}$	$8\frac{1}{2}$	.50
454	$1\frac{1}{2}$	$\frac{7}{32}$	5	.13	462	$3\frac{1}{2}$	$\frac{11}{32}$	9	.63
455	$1\frac{3}{4}$	$\frac{15}{64}$	$5\frac{1}{2}$	.17	463	$3\frac{3}{4}$	$\frac{23}{64}$	$9\frac{1}{2}$	.67
456	2	$\frac{1}{4}$	6	.20	464	4	$\frac{3}{8}$	10	.75
457	$2\frac{1}{4}$	$\frac{17}{64}$	$6\frac{1}{2}$	.25	466	5	$\frac{7}{16}$	12	1.00
458	$2\frac{1}{2}$	$\frac{9}{32}$	7	.33	468	6	$\frac{1}{2}$	14	1.38
459	$2\frac{3}{4}$	$\frac{19}{64}$	$7\frac{1}{2}$	.40	...	...	...	...	...

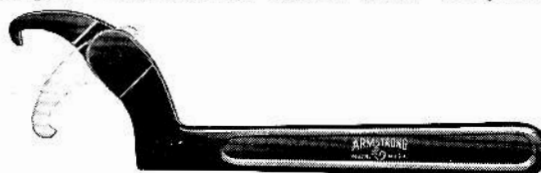
See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

ADJUSTABLE HOOK SPANNER PATTERN

Drop Forged—Selected High Carbon Steel—Gray Enameled

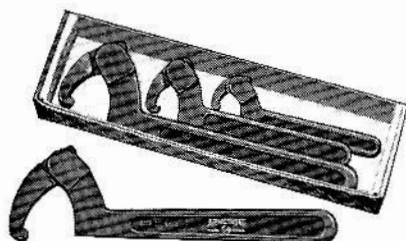


Smoothly burnished. Jaw is hardened.

Finished in gray baked-on enamel.

HI-TEN Hook Spanners will service many sizes of adjusting collars, rings and spindle bearings.

No.	Capacity for Circles, Diameter Inches	Approximate Extreme Length Inches	THICKNESS		Depth Hook Inches	Approximate Weight Lb.
			Handle Inches	Hook Inches		
471	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$11\frac{1}{32}$	$\frac{1}{8}$	.25
472	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$13\frac{1}{32}$	$\frac{5}{32}$	.48
474	2 to $4\frac{3}{4}$	$11\frac{3}{8}$	$\frac{5}{16}$	$15\frac{1}{32}$	$\frac{3}{16}$	.93
474-A	$4\frac{1}{2}$ to $6\frac{1}{4}$	$12\frac{1}{8}$	$\frac{5}{16}$	$15\frac{1}{32}$	$\frac{1}{4}$	1.00
474-B	$6\frac{1}{8}$ to $8\frac{3}{4}$	$13\frac{3}{4}$	$\frac{5}{16}$	$15\frac{1}{32}$	$\frac{5}{16}$	1.20



Hook Spanner Set No. 401C

Contains 1 each of Nos. 471, 472, 474 and 474-A.

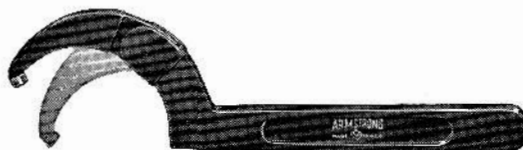
Furnished complete in cardboard box.

Approximate weight, 2.75 pounds.

ADJUSTABLE PIN SPANNER WRENCHES

With Round Pins

Drop Forged—Selected High Carbon Steel—Gray Enameled



Smoothly burnished. Jaw is hardened.

Finished in gray baked-on enamel.

Especially suited for use on adjusting collars, rings, lock nuts.

Wrenches with pins of smaller diameter or length can be furnished on special order.

No.	Capacity for Circles, Diameter Inches	Approximate Extreme Length Inches	THICKNESS		PIN SIZE		Approximate Weight Lb.
			Handle Inches	Hook Inches	Diameter	Length	
0-471	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$11\frac{1}{32}$	$\frac{1}{8}$	$\frac{1}{8}$	.27
0-471-A	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$11\frac{1}{32}$	$\frac{3}{16}$	$\frac{5}{32}$	.27
0-472	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$13\frac{1}{32}$	$\frac{3}{16}$	$\frac{3}{16}$	.5
0-472-A	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$13\frac{1}{32}$	$\frac{1}{4}$	$\frac{7}{32}$	.5
0-474	2 to $4\frac{3}{4}$	$11\frac{3}{8}$	$\frac{5}{16}$	$15\frac{1}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	.99
0-474-A	$4\frac{1}{2}$ to $6\frac{1}{4}$	$12\frac{1}{8}$	$\frac{5}{16}$	$15\frac{1}{32}$	$\frac{3}{8}$	$\frac{1}{4}$	1.10

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

SOCKET PATTERN

Straight Shank—With Removable Pin Handle

Drop Forged—Selected High Carbon Steel



Hexagon Opening



Square Opening

Accurately broached. Smoothly burnished. Carefully hardened.
 Finished in gray baked-on enamel. Wrench face is bright.
 Removable pin handle allows use of another wrench on hexagon end of shank.
 Wrenches longer or shorter than standard lengths can be furnished on special order.
 Wrenches with Hexagon or Square openings can be furnished in Whitworth sizes on special order.

Hexagon Opening

No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
961-A	$\frac{5}{16}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	971-A	$\frac{1}{16}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
962-D	$\frac{3}{8}$	$\frac{5}{8}$	$4\frac{1}{2}$	.20	971-D	$\frac{1}{8}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
963-A	$\frac{13}{32}$	$\frac{11}{16}$	$4\frac{7}{8}$	.25	973-A	$\frac{1}{4}$	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
963-D	$\frac{7}{16}$	$\frac{11}{16}$	$4\frac{7}{8}$	.25	973-B	$\frac{1}{16}$	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
964-A	$\frac{1}{2}$	$\frac{3}{4}$	$5\frac{1}{4}$	.33	975-A	$\frac{1}{16}$	$2\frac{1}{8}$	10	4.00
965-D	$\frac{9}{16}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	975-D	$\frac{1}{2}$	$2\frac{1}{8}$	10	4.00
965-A	$\frac{19}{32}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	976-A	$\frac{1}{8}$	$2\frac{3}{8}$	$10\frac{3}{8}$	4.50
966-D	$\frac{5}{8}$	1	$6\frac{1}{8}$	.75	976-B	$\frac{11}{16}$	$2\frac{3}{8}$	$10\frac{3}{8}$	4.50
967-A	$\frac{11}{16}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	977-A	$\frac{13}{16}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
967-D	$\frac{3}{4}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	977-B	$\frac{1}{8}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
968-A	$\frac{23}{32}$	$\frac{1}{4}$	7	1.00	978-A	2	$2\frac{7}{8}$	$11\frac{3}{8}$	6.75
968-D	$\frac{13}{16}$	$\frac{1}{4}$	7	1.00	979-A	$\frac{23}{16}$	3	$11\frac{7}{8}$	8.50
969-A	$\frac{7}{8}$	$1\frac{3}{8}$	$7\frac{3}{8}$	1.25	979-B	$\frac{21}{4}$	3	$11\frac{7}{8}$	8.50
970-S	$\frac{15}{16}$	$1\frac{1}{2}$	$7\frac{7}{8}$	1.50	980-A	$\frac{23}{8}$	$3\frac{1}{16}$	$12\frac{1}{2}$	11.00
970-D	1	$1\frac{1}{2}$	$7\frac{7}{8}$	1.50					

Square Opening

No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
961-H	$\frac{3}{16}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	968-P	$\frac{1}{16}$	$1\frac{1}{4}$	7	1.00
961-J	$\frac{1}{4}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	969-H	$\frac{3}{4}$	$1\frac{3}{8}$	$7\frac{3}{8}$	1.25
962-H	$\frac{5}{16}$	$\frac{5}{8}$	$4\frac{1}{2}$	.20	971-H	$\frac{7}{8}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
963-H	$\frac{3}{8}$	$\frac{11}{16}$	$4\frac{7}{8}$	.25	973-H	1	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
965-H	$\frac{7}{16}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	974-H	$\frac{1}{8}$	2	$9\frac{1}{2}$	3.50
966-H	$\frac{1}{2}$	1	$6\frac{1}{8}$	.75	976-H	$\frac{1}{4}$	$2\frac{3}{8}$	$10\frac{3}{8}$	4.50
967-H	$\frac{9}{16}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	977-X	$\frac{1}{16}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
968-H	$\frac{5}{8}$	$1\frac{1}{4}$	7	1.00	977-P	$\frac{1}{2}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

OFFSET SOCKET PATTERN

Drop Forged—Selected High Carbon Steel



Hexagon
Opening



Square
Opening

Accurately broached. Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel. Wrench face is bright.

Wrenches with extra length at handle or offset can be furnished on special order.

Wrenches with Hexagon or Square openings can be furnished in Whitworth sizes on special order.

Hexagon Opening

No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.	No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.
261-A	$\frac{5}{16}$	$\frac{1}{2}$	$3\frac{3}{4}$	$\frac{13}{16}$	.13	271-A	$\frac{1}{16}$	$\frac{15}{8}$	10	$2\frac{3}{8}$	1.63
262-D	$\frac{3}{8}$	$\frac{5}{8}$	$4\frac{1}{2}$	1	.20	271-D	$\frac{1}{8}$	$\frac{15}{8}$	10	$2\frac{3}{8}$	1.63
263-A	$\frac{13}{32}$	$\frac{5}{8}$	$4\frac{1}{2}$	$\frac{11}{16}$	.20	273-A	$\frac{1}{4}$	$\frac{17}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.33
263-D	$\frac{7}{16}$	$\frac{11}{16}$	$4\frac{1}{2}$	$\frac{11}{16}$	.20	273-B	$\frac{15}{16}$	$\frac{17}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.33
264-A	$\frac{1}{2}$	$\frac{3}{4}$	$5\frac{1}{2}$	$\frac{11}{4}$	.25	275-A	$\frac{1}{16}$	$\frac{21}{8}$	$13\frac{1}{4}$	$3\frac{1}{8}$	3.50
265-D	$\frac{9}{16}$	$\frac{7}{8}$	$6\frac{1}{2}$	$\frac{17}{16}$	.38	275-D	$\frac{1}{2}$	$\frac{21}{8}$	$13\frac{1}{4}$	$3\frac{1}{8}$	3.50
265-A	$\frac{19}{32}$	$\frac{7}{8}$	$6\frac{1}{2}$	$\frac{17}{16}$	.38	276-A	$\frac{15}{8}$	$\frac{23}{8}$	$14\frac{7}{8}$	$3\frac{1}{2}$	4.50
266-D	$\frac{5}{8}$	1	$6\frac{1}{2}$	$\frac{19}{16}$	.38	276-B	$\frac{11}{16}$	$\frac{23}{8}$	$14\frac{7}{8}$	$3\frac{1}{2}$	4.50
267-A	$\frac{11}{16}$	$\frac{11}{8}$	$7\frac{1}{4}$	$\frac{15}{8}$	.63	277-A	$\frac{13}{16}$	$\frac{25}{8}$	$16\frac{1}{2}$	$3\frac{7}{8}$	6.00
267-D	$\frac{3}{4}$	$\frac{11}{8}$	$7\frac{1}{4}$	$\frac{15}{8}$	.63	277-B	$\frac{17}{8}$	$\frac{25}{8}$	$16\frac{1}{2}$	$3\frac{7}{8}$	6.00
268-A	$\frac{23}{32}$	$\frac{11}{4}$	8	$\frac{13}{16}$	.88	278-A	2	$\frac{27}{8}$	$18\frac{1}{4}$	$4\frac{3}{8}$	8.13
268-D	$\frac{13}{16}$	$\frac{11}{4}$	8	$\frac{13}{16}$	.88	279-A	$\frac{23}{16}$	3	20	$4\frac{7}{8}$	10.00
269-A	$\frac{7}{8}$	$\frac{13}{8}$	$8\frac{3}{8}$	2	.88	279-B	$\frac{21}{4}$	3	20	$4\frac{7}{8}$	10.00
270-S	$\frac{15}{16}$	$\frac{11}{2}$	$9\frac{1}{8}$	$\frac{23}{16}$	1.25	280-A	$\frac{23}{8}$	$\frac{31}{16}$	$21\frac{3}{4}$	$5\frac{3}{8}$	12.33
270-D	1	$\frac{11}{2}$	$9\frac{1}{8}$	$\frac{23}{16}$	1.25						

Square Opening

No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.	No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.
261-J	$\frac{1}{4}$	$\frac{1}{2}$	$3\frac{3}{4}$	$\frac{13}{16}$	.13	268-P	$\frac{1}{16}$	$\frac{11}{4}$	8	$1\frac{3}{16}$	1.00
262-H	$\frac{5}{16}$	$\frac{5}{8}$	$4\frac{1}{2}$	1	.25	269-H	$\frac{3}{4}$	$\frac{13}{8}$	$8\frac{3}{8}$	2	1.00
263-H	$\frac{3}{8}$	$\frac{11}{16}$	$5\frac{1}{2}$	$\frac{11}{16}$	.33	271-H	$\frac{7}{8}$	$\frac{15}{8}$	10	$2\frac{3}{8}$	1.75
265-H	$\frac{7}{16}$	$\frac{7}{8}$	$6\frac{1}{2}$	$\frac{17}{16}$	.44	273-H	1	$\frac{17}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.50
266-H	$\frac{1}{2}$	1	$6\frac{1}{2}$	$\frac{19}{16}$	.44	274-H	$\frac{11}{8}$	2	$12\frac{3}{8}$	$2\frac{7}{8}$	2.50
267-H	$\frac{9}{16}$	$\frac{11}{8}$	$7\frac{1}{4}$	$\frac{19}{8}$	.63	276-H	$\frac{11}{4}$	$\frac{23}{8}$	$14\frac{7}{8}$	$3\frac{1}{2}$	3.75
268-H	$\frac{5}{8}$	$\frac{11}{4}$	8	$\frac{13}{16}$	1.00						

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



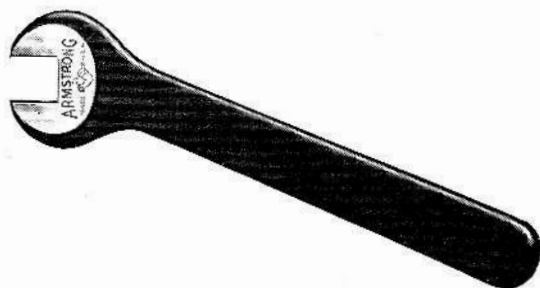
ARMSTRONG HI-TEN WRENCHES

SET SCREW PATTERN

Drop Forged—Selected High Carbon Steel

22½° Angle—Single Head

For Set Screws, Square Head Cap Screws and Nuts
Gray Enameled



22½° Angle—Double Head

For Set Screws, Square Head Cap Screws and Nuts
Gray Enameled



Accurately milled. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Wrench heads ground bright and plainly stamped with catalog number and nominal openings. Wrenches with special openings available on special order.

No.	Nominal Opening Inches	Approximate Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
500	$\frac{3}{16}$	3	$\frac{3}{16}$	.04
501	$\frac{1}{4}$	$3\frac{5}{8}$	$\frac{1}{4}$	.06
502	$\frac{5}{16}$	$4\frac{1}{2}$	$\frac{9}{32}$	.10
503	$\frac{3}{8}$	$5\frac{3}{8}$	$1\frac{1}{32}$	.20
504	$\frac{7}{16}$	$6\frac{1}{4}$	$\frac{3}{8}$	.33
505	$\frac{1}{2}$	7	$\frac{7}{16}$	.38
506	$\frac{9}{16}$	$7\frac{1}{2}$	$\frac{1}{2}$	.50
507	$\frac{5}{8}$	8	$\frac{9}{16}$	.75
508	$\frac{3}{4}$	$9\frac{1}{4}$	$\frac{5}{8}$	1.00
509	$\frac{7}{8}$	$10\frac{1}{2}$	$1\frac{1}{16}$	1.50
510	1	$11\frac{1}{2}$	$\frac{3}{4}$	2.00
511	$1\frac{1}{8}$	12	$1\frac{13}{16}$	2.50

No.	Nominal Openings Inches	Approximate Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
523	$\frac{3}{16}$ & $\frac{1}{4}$	$3\frac{3}{8}$	$\frac{3}{16}$	.10
524	$\frac{3}{16}$ & $\frac{5}{16}$	4	$\frac{1}{4}$	.13
525	$\frac{1}{4}$ & $\frac{3}{16}$	4	$\frac{1}{4}$	.13
526	$\frac{1}{4}$ & $\frac{3}{8}$	5	$\frac{5}{16}$	.17
527	$\frac{5}{16}$ & $\frac{3}{8}$	5	$\frac{5}{16}$	.17
529	$\frac{3}{8}$ & $\frac{7}{16}$	$5\frac{7}{8}$	$1\frac{1}{32}$	.33
530	$\frac{3}{8}$ & $\frac{1}{2}$	$6\frac{5}{8}$	$\frac{3}{8}$	.50
531	$\frac{7}{16}$ & $\frac{1}{2}$	$6\frac{5}{8}$	$\frac{3}{8}$	.50
533	$\frac{1}{2}$ & $\frac{9}{16}$	$7\frac{1}{2}$	$\frac{1}{2}$	.75
534	$\frac{1}{2}$ & $\frac{5}{8}$	$8\frac{3}{8}$	$1\frac{17}{32}$	1.00
535	$\frac{9}{16}$ & $\frac{5}{8}$	$8\frac{3}{8}$	$1\frac{17}{32}$	1.00
537	$\frac{5}{8}$ & $\frac{3}{4}$	10	$\frac{5}{8}$	1.50
539	$\frac{3}{4}$ & $\frac{7}{8}$	$11\frac{3}{8}$	$1\frac{1}{16}$	2.00
541	$\frac{7}{8}$ & 1	$12\frac{3}{8}$	$2\frac{23}{32}$	2.75
543	1 & $1\frac{1}{8}$	14	$2\frac{13}{16}$	3.60

SQUARE BOX PATTERN

(Double Square Broached)

22½° Angle—Single Head

For Set Screws, Square Cap Screws and Nuts

Drop Forged—Selected High Carbon Steel

Gray Enameled



Accurately broached. Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel.

Heads ground bright; plainly stamped with catalog number and nominal opening.

Wrenches with special openings are available on special order.

No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diameter Inches	
581	$\frac{1}{4}$	$3\frac{3}{8}$	$\frac{9}{32}$	$2\frac{1}{32}$	.06
582	$\frac{5}{16}$	$3\frac{3}{4}$	$\frac{5}{16}$	$1\frac{1}{16}$	.13
583	$\frac{3}{8}$	$4\frac{1}{4}$	$1\frac{1}{32}$	$\frac{7}{8}$	.17
584	$\frac{7}{16}$	$4\frac{7}{8}$	$\frac{3}{8}$	1	.25
585	$\frac{1}{2}$	$5\frac{1}{2}$	$\frac{7}{16}$	$1\frac{1}{8}$	.33
586	$\frac{9}{16}$	$6\frac{1}{4}$	$\frac{1}{2}$	$1\frac{3}{16}$	.50
587	$\frac{5}{8}$	7	$\frac{9}{16}$	$1\frac{5}{16}$	.63
588	$\frac{3}{4}$	8	$\frac{5}{8}$	$1\frac{9}{16}$	.75
589	$\frac{7}{8}$	9	$2\frac{1}{32}$	$1\frac{3}{4}$	1.00
590	1	10	$\frac{3}{4}$	2	1.50
591	$1\frac{1}{8}$	11	$1\frac{13}{16}$	$2\frac{1}{4}$	1.88

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

DOUBLE HEAD TOOL POST PATTERN

For Set Screws

Drop Forged—Selected High Carbon Steel

Gray Enameled



Accurately milled and broached. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Heads ground bright and plainly stamped with catalog number and nominal openings.

All openings are slightly larger than nominal sizes listed to allow for proper clearance. Wrenches with special openings on special order.

No.	Open End for Set Screw; Size Inches	Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.	No.	Open End for Set Screw; Size Inches	Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.
554	$\frac{7}{16}$	$\frac{7}{16}$	$5\frac{1}{2}$	$\frac{15}{32}$	.38	556	$\frac{5}{8}$	$\frac{5}{8}$	$6\frac{3}{4}$	$\frac{9}{16}$	.75
555	$\frac{1}{2}$	$\frac{1}{2}$	6	$\frac{17}{32}$	.5	556-B	$\frac{11}{16}$	$\frac{5}{8}$	$6\frac{3}{4}$	$\frac{9}{16}$	.75
555-B	$\frac{9}{16}$	$\frac{1}{2}$	6	$\frac{17}{32}$	.5	556-C	$\frac{11}{16}$	$\frac{11}{16}$	$6\frac{3}{4}$	$\frac{9}{16}$	.75
555-C	$\frac{9}{16}$	$\frac{9}{16}$	6	$\frac{17}{32}$	.5	557	$\frac{3}{4}$	$\frac{3}{4}$	$7\frac{1}{2}$	$\frac{11}{16}$	1.

DOUBLE HEAD TOOL POST PATTERN

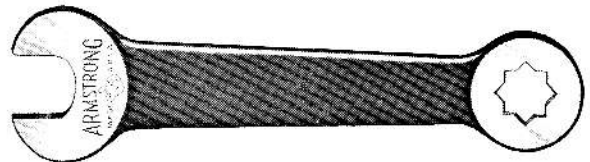
For Nuts and Set Screws

Drop Forged—Selected High Carbon Steel

Gray Enameled

Accurately milled and broached. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Heads ground bright and plainly stamped with catalog number and nominal openings.

All openings are slightly larger than nominal sizes listed to allow for proper clearance. Wrenches with special openings on special order.



No.	Nominal Opening Inches	Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thickness Heads Inches	Approx. Weight Lb.
562-B	$\frac{5}{8}$	$\frac{9}{16}$	$6\frac{1}{2}$	$\frac{7}{16}$	.5	566	$1\frac{1}{4}$	$\frac{3}{4}$	9	$\frac{11}{16}$	1.5
562	$\frac{11}{16}$	$\frac{9}{16}$	$6\frac{1}{2}$	$\frac{7}{16}$	.5	566-B	$1\frac{1}{4}$	$\frac{7}{8}$	9	$\frac{11}{16}$	1.5
563-E	$\frac{13}{16}$	$\frac{7}{16}$	7	$\frac{1}{2}$	.75	567-D	$1\frac{1}{8}$	1	10	$\frac{3}{4}$	2.25
563-F	$\frac{13}{16}$	$\frac{1}{2}$	7	$\frac{1}{2}$	.75	567	$1\frac{1}{4}$	1	10	$\frac{3}{4}$	2.25
563-G	$\frac{13}{16}$	$\frac{9}{16}$	7	$\frac{1}{2}$	.75	567-E	$1\frac{3}{16}$	$\frac{7}{8}$	10	$\frac{3}{4}$	2.25
563-H	$\frac{13}{16}$	$\frac{5}{8}$	7	$\frac{1}{2}$	.75	567-F	$1\frac{5}{16}$	1	10	$\frac{3}{4}$	2.25
563	$\frac{7}{8}$	$\frac{7}{16}$	7	$\frac{1}{2}$	.75	567-B	$1\frac{7}{16}$	$\frac{7}{8}$	10	$\frac{3}{4}$	2.25
563-B	$\frac{7}{8}$	$\frac{1}{2}$	7	$\frac{1}{2}$	.75	567-C	$1\frac{7}{16}$	1	10	$\frac{3}{4}$	2.25
563-C	$\frac{7}{8}$	$\frac{9}{16}$	7	$\frac{1}{2}$	.75	*568-E	$1\frac{1}{2}$	$\frac{7}{8}$	11	$\frac{13}{16}$	3.25
563-D	$\frac{7}{8}$	$\frac{5}{8}$	7	$\frac{1}{2}$	.75	*568-F	$1\frac{1}{2}$	1	11	$\frac{13}{16}$	3.25
564-C	1	$\frac{5}{8}$	7	$\frac{5}{8}$	1.	*568	$1\frac{3}{8}$	$\frac{7}{8}$	11	$\frac{13}{16}$	3.25
564	$1\frac{1}{16}$	$\frac{5}{8}$	8	$\frac{5}{8}$	1.	*568-B	$1\frac{5}{8}$	1	11	$\frac{13}{16}$	3.25
565-C	1	$\frac{3}{4}$	8	$\frac{5}{8}$	1.	*568-G	$1\frac{11}{16}$	1	11	$\frac{13}{16}$	3.25
565	$1\frac{1}{16}$	$\frac{3}{4}$	8	$\frac{5}{8}$	1.	*568-H	$1\frac{7}{8}$	1	11	$\frac{13}{16}$	3.25
566-C	$1\frac{1}{8}$	$\frac{3}{4}$	9	$\frac{11}{16}$	1.5	*568-C	$1\frac{13}{16}$	1	11	$\frac{13}{16}$	3.25
566-D	$1\frac{1}{8}$	$\frac{7}{8}$	9	$\frac{11}{16}$	1.5	*568-D	2	1	11	$\frac{13}{16}$	3.25

*Will be discontinued when present stock is depleted.

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



WRENCH OPENING CHART

American Standard Bolts, Nuts and Cap Screws

Nominal Wrench Opening Inches	Regular Series				Heavy Series				Light Series		Finished Series		For Hex Head Cap Screws Diameter Screws Inches		For Set Screws Diam. In.	For Machine Screw Diam. and Size Bolt
	For Nuts Size Bolts Inches		For Bolts Diameter Inches		For Nuts Size Bolts Inches		For Bolts Diameter Inches		For Nuts Size Bolts Inches		For Nuts and Thick Nuts Size Bolts In.	For Bolts Diam. In.	NEW	OLD	OLD and NEW	OLD and NEW
	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	NEW				
5/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 0 & 1
3/16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 2 & 3
7/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 12
1/4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1/4	No. 4
5/16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5/16	No. 5 & 6
11/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 8
3/8	...	...	1/4	1/4	...	...	...	...	...	...	...	...	...	...	3/8	No. 10
7/16	1/4	1/4	1/4	1/4	...	...	...	...	...	1/4	1/4	1/4	1/4	1/4	7/16	No. 12 & 14
1/2	...	...	5/16	5/16	1/4	1/4	...	1/4	...	5/16	5/16	5/16	5/16	5/16	1/2	...
9/16	5/16	5/16	3/8	3/8	5/16	...	...	...	...	3/8	3/8	3/8	3/8	3/8	9/16	...
19/32	...	...	...	...	...	5/16	...	5/16	...	...	...	...	...	...	...	...
5/8	3/8	3/8	7/16	7/16	...	...	...	...	...	7/16	...	7/16	7/16	7/16	5/8	...
11/16	...	...	...	...	3/8	3/8	...	3/8	...	...	7/16	7/16	7/16	7/16	...	...
3/4	7/16	7/16	1/2	1/2	7/16	...	...	...	...	1/2	1/2	1/2	1/2	1/2	3/4	...
25/32	...	...	...	...	...	7/16	...	7/16	...	...	...	...	...	...	...	...
13/16	1/2	1/2	9/16	...	...	...	...	...	...	...	...	9/16	9/16	9/16	...	...
7/8	9/16	9/16	...	5/8	1/2	1/2	1/2	1/2	...	9/16	9/16	9/16	9/16	9/16	7/8	...
15/16	...	...	5/8	5/8	9/16	9/16	...	9/16	...	5/8	5/8	5/8	5/8	...	...	...
1	5/8	5/8	...	...	5/8	5/8	5/8	5/8	...	3/4	...	...	...	3/4	1	...
1 1/16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1 1/8	3/4	3/4	3/4	3/4	...	...	...	...	...	...	3/4	3/4	3/4	7/8	1 1/8	...
1 1/4	...	...	...	...	3/4	3/4	3/4	3/4	...	7/8	...	...	...	...	1 1/4	...
1 5/16	7/8	7/8	7/8	7/8	...	...	...	...	...	...	7/8	7/8	7/8	1	...	...
1 3/8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1 7/16	...	...	...	...	7/8	7/8	7/8	7/8	...	1	...	...	...	...	...	...
1 1/2	1	1	1	1	...	...	...	...	...	...	1	1	1	1 1/2	1 1/2	...
1 5/8	...	...	...	...	1	1	1	1	...	1 3/8	...	...	...	...	...	...
1 11/16	1 1/8	1 1/8	1 1/8	1 1/8	...	...	...	...	...	...	1 1/8	1 1/8	1 1/8	1 1/4	...	...
1 13/16	...	...	...	...	1 1/8	1 1/8	1 1/8	1 1/8	...	1 1/4	...	...	...	...	...	...
1 7/8	1 1/4	1 1/4	1 1/4	1 1/4	...	...	...	...	...	...	1 1/4	1 1/4	1 1/4	...	...	...
2	...	...	...	...	1 1/4	1 1/4	1 1/4	1 1/4	...	1 3/8	...	...	...	...	...	...
2 1/16	1 3/8	1 3/8	1 3/8	1 3/8	...	...	...	...	...	...	1 3/8	1 3/8	1 3/8	...	...	...
2 3/16	...	...	...	...	1 3/8	1 3/8	1 3/8	1 3/8	...	1 1/2	...	...	...	...	...	...
2 1/4	1 1/2	1 1/2	1 1/2	1 1/2	...	...	...	...	...	...	1 1/2	1 1/2	1 1/2	...	...	...
2 3/8	...	...	...	...	1 1/2	1 1/2	1 1/2	1 1/2	...	...	...	...	...	...	...	...
2 7/16	1 5/8	1 5/8	1 5/8	1 5/8	...	...	...	...	...	...	1 5/8	1 5/8	...	...	...	...
2 9/16	...	...	...	...	1 5/8	1 5/8	1 5/8	1 5/8	...	...	...	...	...	...	...	...
2 5/8	1 3/4	1 3/4	1 3/4	1 3/4	...	...	...	...	...	...	1 3/4	1 3/4	...	...	...	...
2 3/4	...	...	...	...	1 3/4	1 3/4	1 3/4	1 3/4	...	...	...	...	...	...	...	...
2 13/16	1 7/8	1 7/8	1 7/8	1 7/8	...	...	...	...	...	...	1 7/8	1 7/8	...	...	...	...
2 15/16	...	...	...	...	1 7/8	1 7/8	1 7/8	1 7/8	...	...	...	...	...	...	...	...
3	2	2	2	2	...	...	...	...	...	...	2	2	...	...	...	...
3 1/8	...	...	...	...	2	2	2	2	...	...	...	...	...	...	...	...
3 3/8	2 1/4	2 1/4	2 1/4	2 1/4	...	...	...	...	...	...	2 1/4	2 1/4	...	...	...	...
3 1/2	...	...	...	...	2 1/4	2 1/4	2 1/4	2 1/4	...	...	...	...	...	...	...	...
3 3/4	2 1/2	2 1/2	2 1/2	2 1/2	...	...	...	...	...	...	2 1/2	2 1/2	...	...	...	...
3 7/8	...	...	...	...	2 1/2	2 1/2	2 1/2	2 1/2	...	...	...	...	...	...	...	...
4 1/8	2 3/4	2 3/4	2 3/4	2 3/4	...	...	...	...	...	...	2 3/4	2 3/4	...	...	...	...
4 1/4	...	...	...	...	2 3/4	2 3/4	2 3/4	2 3/4	...	...	...	...	...	...	...	...
4 1/2	3	3	3	3	...	...	...	...	...	...	3	3	...	...	...	...
4 5/8	...	...	...	...	3	3	3	3	...	...	...	...	...	...	...	...
4 7/8	...	...	3 1/4	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	3 1/4	3 1/4	...	3 1/4	...	...	...	...	...	...	...	...
5 1/4	...	...	3 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...
5 3/8	...	...	...	...	3 1/2	3 1/2	...	3 1/2	...	...	...	...	...	...	...	...
5 5/8	...	...	3 3/4	...	...	...	...	...	...	...	...	...	...	...	...	...
5 3/4	...	...	...	...	3 3/4	3 3/4	...	3 3/4	...	...	...	...	...	...	...	...
6	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...
6 1/8	...	...	...	...	4	4	...	4	...	...	...	...	...	...	...	...

*Square only.

ARMSTRONG ARMALLOY® SOCKET WRENCHES



ARMSTRONG ARMALLOY Socket Wrenches are designed to embody strength, dependability and handiness—qualities which have been recognized features of ARMSTRONG TOOLS for over 75 years.

ARMSTRONG ARMALLOY Socket Wrenches are made from a selected grade alloy steel, are machined and gauged to accurate limits, heat treated, hardened and beautifully finished in chrome plate. Furnished in five drive sizes with a full assortment of driving units, sockets and attachments which permit assembly of the proper wrench at all times.

NM—MINIATURE SERIES— $\frac{1}{4}$ -Inch Square Drive.

Ideally suited for work calling for delicate adjustments. Includes openings $\frac{3}{16}$ to $\frac{9}{16}$ inch—regular 4, 6, 8 and 12-point sockets and Extra Deep 6-point sockets. (Shown on pages 76 and 77).

F—LIGHT SERIES— $\frac{3}{8}$ -Inch Square Drive.

Strong and light with straight thin wall sockets. Especially suitable for work in close quarters. Includes openings $\frac{1}{4}$ to $\frac{7}{8}$ inch—regular 4-point (one size only), regular 8-point, regular 6-point and 12-point, extra deep 6-point and 12-point and flex 12-point sockets. (Shown on pages 78 to 81).

S—STANDARD SERIES— $\frac{1}{2}$ -Inch Square Drive.

Perfect for general service work of all types. Slim head walls enable these sockets to operate with a sure grip in close or obstructed places. Includes openings $\frac{5}{16}$ to $1\frac{1}{4}$ inches—regular 6-point, regular 8-point, regular 12-point, extra deep 12-point and flex 12-point sockets. (Shown on pages 82 to 87).

H—HEAVY DUTY SERIES— $\frac{3}{4}$ -Inch Square Drive.

Especially designed for heavy duty service where reliable strength without unnecessary weight is required. Includes openings $\frac{7}{8}$ to $2\frac{1}{4}$ inches—regular 12-point and extra deep 12-point sockets. (Shown on pages 92 and 93).

X—EXTRA HEAVY DUTY SERIES—1-Inch Square Drive.

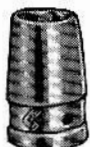
This line is designed to handle the most rugged jobs where maximum strength is required. Includes openings $1\frac{1}{16}$ to $3\frac{1}{8}$ inches—regular 12-point sockets. (Shown on pages 94 and 95).

Note: The above five series are intended for use as hand tools only and are not to be used on power tools.

ARMSTRONG ARMALLOY Power Drive Sockets, Sockets, with thicker walls for use on impact and power wrenches, are manufactured with the same care and precision as standard-wall ARMALLOY Sockets. Standard length power drive sockets in $\frac{3}{8}$ -inch, $\frac{1}{2}$ -inch, $\frac{5}{8}$ -inch, $\frac{3}{4}$ -inch and 1-inch square drives; extra deep lengths in all but 1-inch drive. Various drive parts and accessories for all drive sizes. (Shown on pages 99 to 103.)



1/4"



Hexagon
6-Point
Opening

ARMSTRONG ARMALLOY SOCKET WRENCHES

Miniature Series—1/4" Square Drive

SOCKETS

Made from selected alloy steel. Gauged to accurate limits. Heat treated and tested to assure maximum strength. Finished in chrome plate.

Invaluable for all work on nuts from 3/16 to 3/8" inclusive, across flats. Especially suited for work on generators, ignition units, radios and other work requiring secure grip for delicate adjustment.



Double
Hexagon
12-Point
Opening



Square,
Double
Square
8-Point
Opening

Nominal Opening Inches	6 and 12-Point Openings for Hex Nuts						4-Point and 18-Point Openings	
	6-Point Sockets		12-Point Sockets		*Extra Deep 6-Point Sockets		No.	Approx. Wt., Lb.
	No.	Approx. Wt., Lb.	No.	Approx. Wt., Lb.	No.	Approx. Wt., Lb.		
3/16	NM-606	.02					NM-406	.03
7/32	NM-607	.02					NM-407	.03
1/4	NM-608	.02					NM-408	.03
9/32	NM-609	.02			NMD-608	.03		
5/16	NM-610	.02			NMD-609	.03		
11/32	NM-611	.03	NM-1210	.02	NMD-610	.04	NM-810	.03
3/8	NM-612	.03	NM-1211	.03	NMD-611	.04		
7/16	NM-614	.04	NM-1212	.03	NMD-612	.04	NM-812	.05
1/2			NM-1214	.04	NMD-614	.04		
9/16			NM-1216	.05	NMD-616	.05		
			NM-1218	.06				

*All 1/4" Drive Extra Deep Sockets, 2" long.



Extra
Deep,
Hexagon
6-Point
Opening

DRIVE PARTS



No. NM-91 Reversible Ratchet

No. NM-91 Reversible Ratchet: Stop ball prevents accidental reversing of ratchet action during use. Construction features facilitate use in close quarters. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Internal mechanism is of tested and proven design. Handsome chrome finish.



No. NM-20A Sliding T Handle



No. NM-100 Short Moulded
Shock-Proof Drive Handle



Nos. MF-130, MF-131
Adapters



No. FM-150
Plug Adapter



No. NM-42 Flexible Hinge Handle



Nos. NM-102, NM-115, NM-116 Extensions



No. NM-42B Sliding Bar



No. NM-106 Moulded Shock-Proof Drive Handle



No. NM-110 Extension Driver



No. NM-140
Universal Joint



No. NM-126 Regular Screw Driver Socket Attachment

No.	Description	Approx. Wt., Lb.
NM-91	Reversible Ratchet, 4 1/2" Long.....	.22
NM-20A	Sliding T Handle, 4 1/2" Long.....	.13
NM-42	Flexible Hinge Handle, 5 3/4" Long; Drilled for 1/4" Sliding Bar.....	.19
NM-42B	Sliding Bar, 1/4x4 1/2"; For No. NM-42.....	.09
NM-100	Short Moulded Shock-Proof Drive Handle, with Plastic Grip; 2 1/4" Long.....	.06
NM-106	Moulded Shock-Proof Drive Handle, with Plastic Grip; Has 1/4" Square Drive Open- ing in Butt of Handle; 6" Long.....	.13

No.	Description	Approx. Wt., Lb.
NM-110	Extension-Driver, with knurled Spin Grip. Knurled Handle may be locked for use as a driver. 5 1/2" long.....	.38
NM-102	Extension, 2" Long.....	.06
NM-115	Extension, 6" Long.....	.16
NM-116	Extension, 14" Long.....	.35
NM-126	Regular Screw Driver Socket Attach. 6".....	.14
NM-140	Universal Joint.....	.06
MF-130	Adapter, 1/4" Sq. Female, 3/8" Sq. Male.....	.06
MF-131	Adapter, 1/4" Sq. Male, 3/8" Sq. Female.....	.06
FM-150	Plug Adapter, 3/8" Sq. Male, 1/4" Sq. Male.....	.05

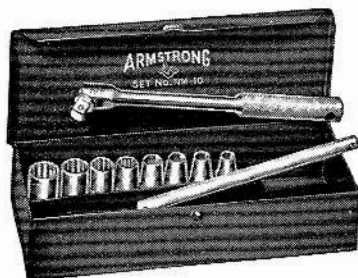
See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Miniature Series— $\frac{1}{4}$ " Square Drive

$\frac{1}{4}$ "



Set No. NM-10

Drive Parts

NM-42, Flex. Hinge Handle, $5\frac{3}{4}$ " Long.
NM-42B, Sliding Bar, $4\frac{1}{2}$ " Long.



Set No. NM-10A

Drive Parts

NM-91, Rev. Ratchet, $4\frac{1}{2}$ " Long.
NM-102, Extension, 2" Long.

Set Nos. NM-10 & NM-10A

Contents, 10 Pieces: 8 Sockets, 2 Drive Parts. Complete with Steel Case No. C-1. Approximate weight, 1 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
NM-606	$\frac{3}{16}$	NM-609	$\frac{9}{32}$	NM-1212	$\frac{3}{8}$
NM-607	$\frac{1}{4}$	NM-1210	$\frac{5}{16}$	NM-1214	$\frac{1}{2}$
NM-608	$\frac{1}{4}$	NM-1211	$\frac{11}{32}$		

Set No. NM-14

Contents, 14 pieces: 10 sockets, 3 screw driver attachments, 1 drive part. Complete with Steel Case No. C-1. Approximate weight, 1.09 lb.

Set No. NM-14R—same, except in plastic roll with transparent face. Approximate weight, .64 lb.

Sockets

One Each No.	Nom. Opening Inches	One Each No.	Nom. Opening Inches	One Each No.	Nom. Opening Inches
NM-606	$\frac{3}{16}$	NM-1210	$\frac{5}{16}$	NM-1214	$\frac{1}{2}$
NM-607	$\frac{1}{4}$	NM-1211	$\frac{11}{32}$	NM-1216	$\frac{1}{2}$
NM-608	$\frac{1}{4}$	NM-1212	$\frac{3}{8}$	NM-1218	$\frac{9}{16}$
NM-609	$\frac{9}{32}$				

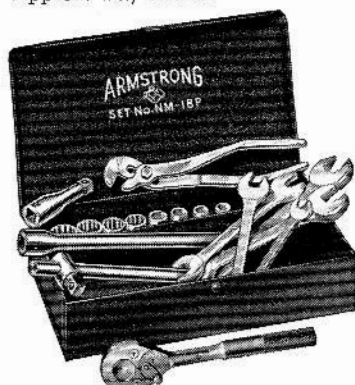
Drive Parts

NM-106 Shock-proof handle
NM-23C Screw driver
NMP-12 #1 Phillips Screw driver
NMP-22 #2 Phillips Screw driver

Set No. NM-18P

Contents, 18 Pieces: 8 Sockets, 4 Drive Parts, 5 Miniature Open End Wrenches, 1 Miniature Pliers. Complete with Steel Case No. C-1. Approx. weight, 1.75 lb.

Set No. NM-18, Same, less Pliers; Approx. wt., 1.66 lb.



Sockets and Wrenches

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
NM-606	$\frac{3}{16}$	NM-1214	$\frac{1}{2}$
NM-607	$\frac{1}{4}$	*H-10	$\frac{3}{16}$ & $\frac{7}{32}$
NM-608	$\frac{1}{4}$	*H-12	$\frac{1}{4}$ & $\frac{9}{32}$
NM-609	$\frac{9}{32}$	*H-14	$\frac{5}{16}$ & $\frac{11}{32}$
NM-1210	$\frac{5}{16}$	*H-16	$\frac{3}{8}$ & $\frac{7}{16}$
NM-1211	$\frac{11}{32}$	*H-18	$\frac{13}{32}$ & $\frac{15}{32}$
NM-1212	$\frac{3}{8}$		

*Armloy Miniature 15° Angle Open End Wrench.

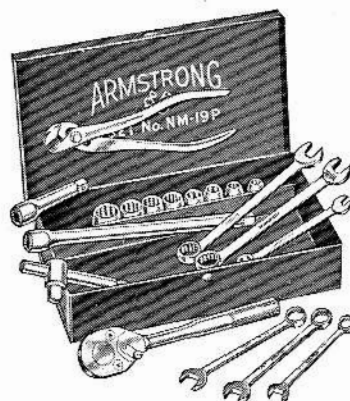
Drive Parts

NM-91, Rev. Ratchet, $4\frac{1}{2}$ " Long.
NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
NM-102, Extension, 2" Long.
NM-115, Extension, 6" Long.
1519-A, Miniature Pliers.

Set No. NM-19P

Contents, 19 Pieces: 8 Sockets, 4 Drive Parts, 1 Miniature Pliers, No. 1186C 6-Piece Combination Wrench Set. Complete with Steel Case No. C-1. Approx. weight, 2.37 lb.

Set No. NM-19, Same, less Pliers; Approx. wt., 2.3 lb.



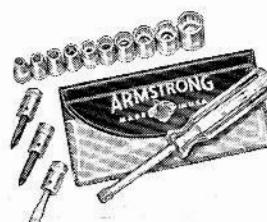
Sockets and Wrenches

One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.
NM-606	$\frac{3}{16}$	NM-1214	$\frac{1}{2}$
NM-607	$\frac{1}{4}$	†1157	$\frac{1}{32}$ & $\frac{1}{16}$
NM-608	$\frac{1}{4}$	†1158	$\frac{1}{4}$ & $\frac{1}{2}$
NM-609	$\frac{9}{32}$	†1158-A	$\frac{9}{32}$ & $\frac{1}{2}$
NM-1210	$\frac{5}{16}$	†1159	$\frac{3}{16}$ & $\frac{1}{2}$
NM-1211	$\frac{11}{32}$	†1159-A	$\frac{11}{32}$ & $\frac{1}{2}$
NM-1212	$\frac{3}{8}$	†1160	$\frac{3}{4}$ & $\frac{3}{8}$

†Armloy Combination Wrench.

Drive Parts

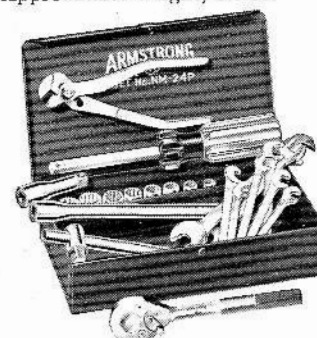
NM-91, Rev. Ratchet, $4\frac{1}{2}$ " Long.
NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
NM-102, Extension, 2" Long.
NM-115, Extension, 6" Long.
1519-A, Miniature Pliers.



Set No. NM-24P

Contents, 24 Pieces: 8 Sockets, 5 Drive Parts, 1 No. 1519-A Pliers. 10 15°-75° Angle Miniature Wrenches. Complete with Steel Case No. C-1. Approximate weight, 2 lb.

Set No. NM-24, Above Set, less Pliers; Approximate weight, 1.9 lb.



Sockets and Wrenches

One Each No.	Nom. Opening Inches	One Each No.	Nom. Opening Inches
NM-606	$\frac{3}{16}$	*1113	$\frac{13}{64}$ & $\frac{13}{64}$
NM-607	$\frac{1}{4}$	*1114	$\frac{1}{32}$ & $\frac{1}{16}$
NM-608	$\frac{1}{4}$	*1115	$\frac{13}{64}$ & $\frac{13}{64}$
NM-609	$\frac{9}{32}$	*1116	$\frac{1}{4}$ & $\frac{1}{4}$
NM-1210	$\frac{5}{16}$	*1118	$\frac{9}{32}$ & $\frac{1}{2}$
NM-1211	$\frac{11}{32}$	*1120	$\frac{3}{16}$ & $\frac{3}{16}$
NM-1212	$\frac{3}{8}$	*1122	$\frac{11}{32}$ & $\frac{11}{32}$
NM-1214	$\frac{1}{2}$	*1124	$\frac{3}{8}$ & $\frac{3}{8}$
*1112	$\frac{3}{16}$ & $\frac{3}{16}$	*1128	$\frac{7}{16}$ & $\frac{7}{16}$

*Armloy miniature wrench, 15° and 75° angle openings.

Drive Parts

NM-91, Rev. Ratchet, $4\frac{1}{2}$ " Long.
NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
NM-106, Shock-Proof Handle, 6" Long.
NM-102, Extension, 2" Long.
NM-115, Extension, 6" Long.
1519-A, Miniature Pliers.



3/8"

ARMSTRONG ARMALLOY SOCKET WRENCHES

Light Series—3/8" Square Drive

SOCKETS

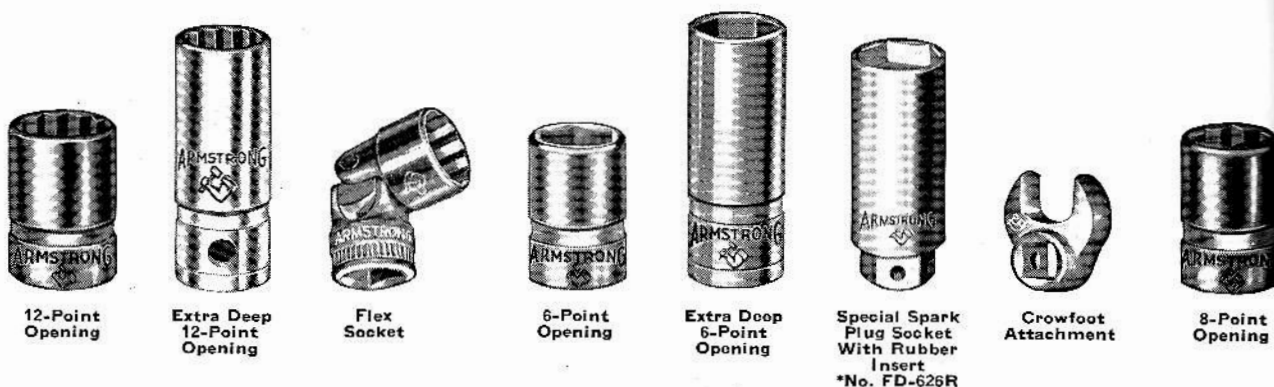
Made from selected alloy steel.

Gauged to accurate limits.

Heat treated and tested to assure maximum strength.

Finished in chrome plate.

Designed with thin head walls which grip the crowded or awkwardly placed nut, yet provide sufficient strength to loosen stubborn nuts and bolts. Especially useful in general work of light character.



Nominal Opening Inches	12-Point Openings						6-Point Openings				Crowfoot Attachments		†4-Point and 8-Point Openings	
	Regular		Extra Deep From 2 to 2 5/8" Long (Cross Hole for 3/16" Bar)		Flex Sockets		Regular		Extra Deep From 2 to 2 5/8" Long (Cross Hole for 3/16" Bar)				Regular All 1" Long	
	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.
1/4	F-1208	.04												
9/32													†F-409	.04
5/16	F-1210	.04					F-610	.04					F-810	.05
11/32	F-1211	.05												
3/8	F-1212	.05	FD-1212	.08	FX-1212	.09	F-612	.05	FD-612	.08	FC-1700	.08	F-812	.06
7/16	F-1214	.05	FD-1214	.10	FX-1214	.09	F-614	.05	FD-614	.10	FC-1701	.08	F-814	.07
1/2	F-1216	.06	FD-1216	.10	FX-1216	.09	F-616	.06	FD-616	.10	FC-1001	.11	F-816	.22
17/32														
9/16	F-1218	.07	FD-1218	.13	FX-1218	.10	F-618	.07	FD-618	.13	FC-1702	.11	F-818	.12
19/32	F-1219	.08												
5/8	F-1220	.09	FD-1220	.16	FX-1220	.11	F-620	.09	FD-620	.16	FC-1703	.18	F-820	.18
11/16	F-1222	.11	FD-1222	.22	FX-1222	.11	F-622	.11	FD-622	.22	FC-1003	.18		
3/4	F-1224	.13	FD-1224	.22	FX-1224	.13	F-624	.13	FD-624	.22				
25/32	F-1225	.14												
13/16	F-1226	.15	FD-1226	.24					FD-626	.24				
13/16									*FD-626R	.36				
7/8	F-1228	.18	FD-1228	.25										

See chart page 74, listing nominal wrench openings for American Standard Bolts Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCHES

Light Series— $\frac{3}{8}$ " Square Drive

$\frac{3}{8}$ "

DRIVE PARTS



Drop Forged—Flat Handle
No. FA-51 Reversible Ratchet



Drop Forged—Flat Handle
No. FA-50 Plug Connector Type Ratchet



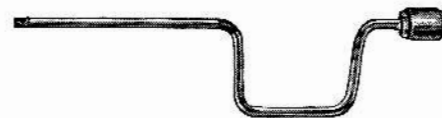
No. F-91 Reversible Ratchet—Round Handle



No. F-40 Flexible Hinge Handle



No. F-20A Sliding T Handle



No. F-15 Speeder



No. F-40B Sliding Bar



No. F-30 Offset Handle



Nos. MF-130, FS-130
Adapters



No. F-3 Screw Driver
Socket Attachment
(Will be discontinued when
present stock is depleted)



Nos. F-102, F-103, F-110, F-115, F-117 Extension Bars



No. F-150
Plug Connector



Nos. FM-150, FS-151
Plug Adapters



No. F-140 Universal Joint

No. F-91 Reversible Ratchet—Stop ball prevents accidental reversing of ratchet action during use. Construction features facilitate use in close quarters. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Internal mechanism is of tested and proven design. Fine tooth—narrow head. Bright chrome finish.

No. FA-51 Reversible Ratchet—Instantly reversible by moving reversing lever from left to right. Stop ball prevents accidental reversing of ratchet action during use. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Working arc is 15° . Bright chrome finish.

No. FA-50 Plug Connector Type Ratchet—Same basic design as FA-51 except reversing is accomplished by turning ratchet over. Furnished with removable plug connector. Bright chrome finish.

No.	Description	Approx. Wt., Lb.	No.	Description	Approx. Wt., Lb.
F-91	Reversible Ratchet, 7" Long	.50	F-115	Extension Bar, 10 $\frac{1}{2}$ " Long	.58
FA-51	Reversible Ratchet, 7" Long	.56	F-117	Extension Bar, 17" Long	.89
FA-50	Plug Connector Type Ratchet, 7" Long	.50	F-140	Universal Joint	.13
FA-50A	Above, less Plug Connector	.30	F-3	Screw Driver Socket Attachment; Size of Bit, $\frac{1}{4}$ x.030"; Length, 2"	.06
F-20A	Sliding T Handle, 8" Long	.30	MF-130	Adapter, $\frac{1}{4}$ " Sq. Female, $\frac{3}{8}$ " Sq. Male	.06
F-40	Flexible Hinge Handle, 8 $\frac{1}{2}$ " Long; May be Used as Exten.; Drilled for $\frac{5}{16}$ " Sliding Bar	.56	MF-131	Adapter, $\frac{1}{4}$ " Sq. Male, $\frac{3}{8}$ " Sq. Female	.06
F-40B	Sliding Bar, $\frac{5}{16}$ x7"; For No. F-40	.38	FS-130	Adapter, $\frac{3}{8}$ " Sq. Female, $\frac{1}{2}$ " Sq. Male	.13
F-30	Offset Handle, Knurled Grip, 7 $\frac{3}{4}$ " Long	.50	FS-131	Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Female	.13
F-15	Speeder, Knurled Spin Grip, 16 $\frac{1}{2}$ " Long	1.06	FM-150	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{4}$ " Sq. Male	.18
F-102	Extension 1 $\frac{3}{4}$ " Long	.15	FS-151	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Male	.18
F-103	Extension Bar, 3" Long	.19	F-150	Plug Connector, $\frac{3}{8}$ " Sq. Male	.20
F-110	Extension Bar, 6" Long	.25			



3/8"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Light Series—3/8" Square Drive



Set No. F-10

Contents

Basic set of 10 Pieces: 7 Sockets, 3 Drive Parts.
Complete with Steel Case No. C-5. Approximate weight, 6 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
F-1212	3/8	F-1218	9/16	F-1224	3/4
F-1214	7/16	F-1220	5/8		
F-1216	1/2	F-1222	11/16		

Drive Parts

No. F-91, Reversible Ratchet, 7" Long.
No. F-40, Flexible Hinge Handle, 8 1/2" Long.
No. F-103, Extension, 3" Long.



Set No. F-10A

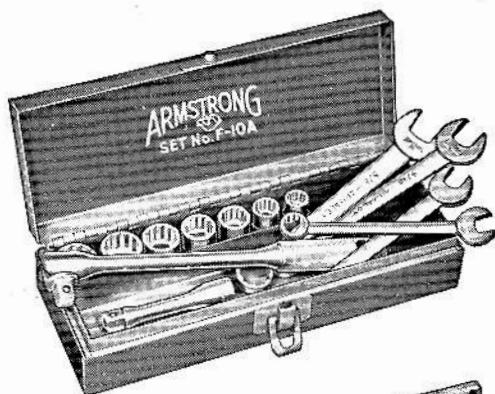
Contents

Basic Set No. F-10 listed above, plus 1 No. 1104C 4-Piece Combination Wrench Set, contents listed below.

Complete with Steel Case No. C-5.
Approximate weight, 6 3/4 lb.

Combination Wrenches

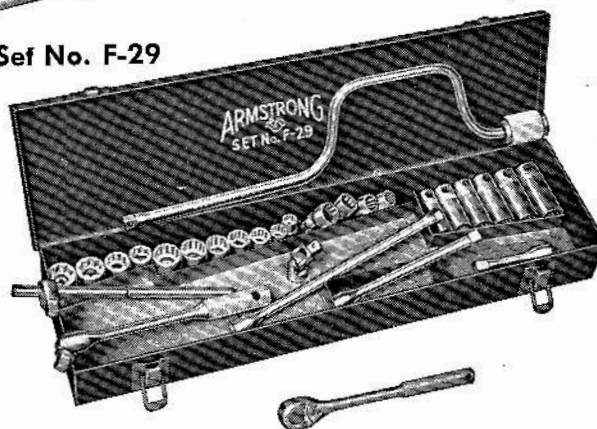
One Each No.	Nominal Openings Inches	Length Inches
1161	7/16 & 7/8	5
1162	1/2 & 1/2	5 1/4
1163	9/16 & 9/16	5 7/8
1164	5/8 & 5/8	6 1/4



Set No. F-29

Contents

29 Pieces: 21 Sockets, 8 Drive Parts.
Complete with Steel Case No. C-7.
Approximate weight, 9 1/2 lb.



Sockets

One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.
F-1212	3/8	F-1224	3/4	FD-1216	1/2	F-816	1/2
F-1214	7/16	FX-1214	7/16	FD-1218	9/16	F-818	9/16
F-1216	1/2	FX-1216	1/2	FD-1220	5/8	F-820	5/8
F-1218	9/16	FX-1218	9/16	FD-1222	11/16		
F-1220	5/8	FX-1220	5/8	FD-1224	3/4		
F-1222	11/16	FD-1214	7/16	F-814	7/16		

Drive Parts

No. F-91, Reversible Ratchet, 7" Long.
No. F-20A, Sliding T Handle, 6 1/2" Long.
No. F-40, Flex. Hinge Handle, 8 1/2" Long.

No. F-15, Speeder, 16 1/2" Long.
No. F-103, Extension, 3" Long.
No. F-110, Extension, 6" Long.

No. F-115, Extension, 10 1/2" Long.
No. F-140, Universal Joint.

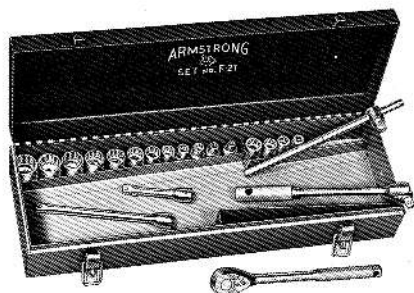
See page 91 for dimensions of steel cases



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Light Series— $\frac{3}{8}$ " Square Drive

$\frac{3}{8}$ "



Set No. F-21

Contents

Basic set of 21 Pieces: 16 Sockets, 5 Drive Parts.
Complete with Steel Case No. C-7. Approximate weight, 7 lb.

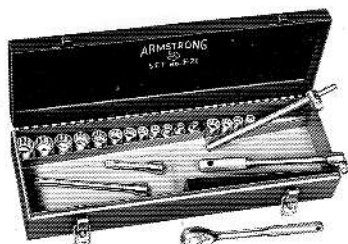
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
F-1208	$\frac{1}{4}$	F-1214	$\frac{7}{16}$	F-1222	$\frac{11}{16}$	F-409	$\frac{9}{32}$
F-1210	$\frac{5}{16}$	F-1216	$\frac{1}{2}$	F-1224	$\frac{3}{4}$	F-810	$\frac{5}{16}$
F-1211	$\frac{11}{32}$	F-1218	$\frac{9}{16}$	F-1225	$\frac{25}{32}$	F-812	$\frac{3}{8}$
F-1212	$\frac{3}{8}$	F-1220	$\frac{5}{8}$	F-1226	$\frac{13}{16}$	F-814	$\frac{7}{16}$

Drive Parts

No. F-91, Reversible Ratchet, 7" Long.
No. F-40, Flexible Hinge Handle, $8\frac{1}{2}$ " Long.
No. F-20A, Sliding T Handle, $6\frac{1}{2}$ " Long.
No. F-103, 3" Extension.
No. F-110, 6" Extension.

Set No. F-21A



Contents

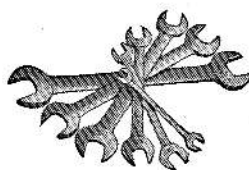
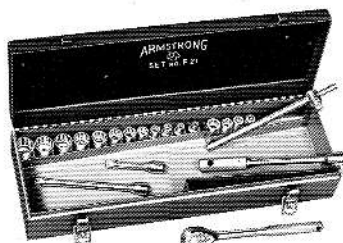
Basic Set No. F-21 shown above, plus 1 No. 1106C 6-Piece Combination Wrench Set, contents listed below.

Complete with Steel Case No. C-7.
Approximate weight, 8 lb.

Combination Wrenches

No.	Nominal Openings Inches	Length Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8

Set No. F-21B



Contents

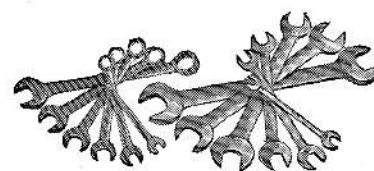
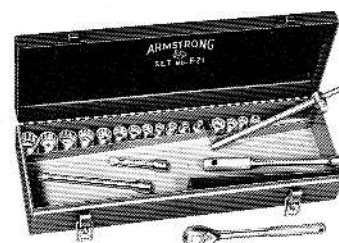
Basic Set No. F-21 shown above, plus 1 No. 6A-26C 6-Piece Engineers' Wrench Set, contents listed below.

Complete with Steel Case No. C-7.
Approximate weight, 9 lb.

Engineers' Wrenches

No.	Nominal Openings Inches	Length Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$

Set No. F-21C



Contents

Basic Set No. F-21, shown above, plus 1 No. 1106C 6-Piece Combination Wrench Set and 1 No. 6A-26C 6-Piece Engineers' Wrench Set, contents listed below.

Complete with Steel Case No. C-7.
Approximate weight 10 lb.

Combination Wrenches

No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$

Engineers' Wrenches

No.	Nominal Openings Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1033-C	$\frac{15}{16}$ & 1



1/2"

ARMSTRONG ARMALLOY SOCKET WRENCHES

Standard Series—1/2" Square Drive

SOCKETS

Made from selected grade alloy steel.

Gauged to accurate limits.

Heat treated and tested to assure maximum strength.

Finished in chrome plate.

Thin head walls enable these sockets to operate with a sure grip in close or obstructed places. In close quarters, the double hexagon opening rotates the nut when the working arc is limited to 30°.

Extra Deep Sockets are particularly useful for work on spark plugs, body bolts, U bolts and for service wherever the bolt extends beyond the nut further than usual.

Universal joint Flex Sockets will operate within a range of about 130° angle with any 1/2" square drive tool and are indispensable on many jobs in obstructed places.



6-Point
Opening



12-Point
Opening



Extra Deep
12-Point
Opening



Flex
Socket



8-Point
Opening

Nominal Opening Inches	6-Point Openings		12-Point Openings						8-Point Openings	
			Regular		Extra Deep All Sizes 3 1/4" Long 1/8" Diameter Cross Hole		Flex Sockets			
	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.
5/16									S-810	.13
3/8	ST-612	.13	ST-1212	.13					S-812	.13
7/16	ST-614	.13	ST-1214	.13					S-814	.19
1/2	ST-616	.13	ST-1216	.13	SD-1216	.27	SX-1216	.24	S-816	.25
9/16	ST-618	.13	ST-1218	.13	SD-1218	.26	SX-1218	.25	S-818	.25
9/16			*SF-1218	.13						
19/32	ST-619	.13	ST-1219	.13						
5/8	ST-620	.19	ST-1220	.19	SD-1220	.26	SX-1220	.26	S-820	.38
21/32	ST-621	.14	ST-1221	.14						
11/16	ST-622	.19	ST-1222	.19	SD-1222	.26	SX-1222	.27	S-822	.38
3/4	ST-624	.19	ST-1224	.19	SD-1224	.37	SX-1224	.29	S-824	.44
25/32	ST-625	.25	ST-1225	.25						
13/16	ST-626	.25	ST-1226	.25	SD-1226	.37			S-826	.46
7/8	ST-628	.25	ST-1228	.25	SD-1228	.45			S-828	.50
7/8					SD-1228 T	.45				
15/16	ST-630	.31	ST-1230	.31	SD-1230	.51				
31/32	ST-631	.31	ST-1231	.31						
1	ST-632	.31	ST-1232	.31	SD-1232	.52			S-832	.56
11/16			ST-1234	.38	SD-1234	.63				
11/8			ST-1236	.38	SD-1236	.74				
13/16			ST-1238	.44						
11/4			ST-1240	.50						

*Special Socket for Ford and Mercury connecting rods—not guaranteed.

†No. SD-1228T Extra thin wall not guaranteed.

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCHES

Standard Series— $\frac{1}{2}$ " Square Drive

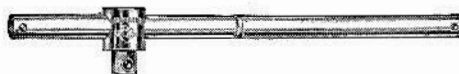
DRIVE PARTS



No. S-91 Reversible Ratchet—Round Handle



No. S-92 Reversible Ratchet—Long Round Handle



No. S-20A Sliding T Handle



No. S-42B Sliding Bar



No. S-30 Offset Handle



No. S-140
Universal Joint



Nos. FS-130, SH-130
Adapters



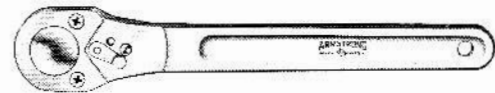
Nos. SB-30, SB-40
Screw Drivers



Nos. FS-151, SH-151
Plug Adapters



No. S-150
Plug Connector



Drop Forged—Flat Handle
No. SA-51 Reversible Ratchet



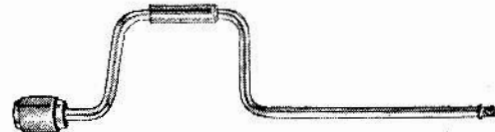
Drop Forged—Flat Handle
No. SA-50 Plug Connector Type Ratchet



Nos. S-40, S-41—Flexible Hinge Handles



Nos. S-102P, S-110P, S-115P, S-121P Extensions



Nos. S-10 and S-15 Speeders

Nos. S-91 and S-92 (Long Handle) Reversible Ratchets:—Stop ball prevents accidental reversing of ratchet action during use. Construction features facilitate use in close quarters. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Internal mechanism is of tested and proven design. Fine tooth—narrow head. Bright chrome finish.

No. SA-51 Reversible Ratchet:—Instantly reversible by moving reversing lever from left to right. Stop ball prevents accidental reversing of ratchet action during use. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Working arc is 15° . Bright chrome finish.

No. SA-50 Plug Connector Type Ratchet: Same basic design as SA-51 except reversing is accomplished by turning ratchet over. Furnished with removable plug connector. Bright chrome finish.

No.	Description	Approx. Wt., Lb.	No.	Description	Approx. Wt., Lb.
S-91	Reversible Ratchet, $10\frac{1}{2}$ " Long	1.50	S-102P	Extension, $2\frac{1}{2}$ " Long	.35
S-92	Reversible Ratchet, 15" Long	3.20	S-110P	Extension, $5\frac{1}{4}$ " Long	.88
SA-51	Reversible Ratchet, $10\frac{1}{2}$ " Long	1.25	S-115P	Extension, $10\frac{1}{2}$ " Long	1.25
SA-50	Plug Connector Type Ratchet, $10\frac{1}{2}$ " Long	1.13	S-121P	Extension, 20" Long	2.14
SA-50A	Above, less Plug Connector	.88	S-140	Universal Joint	.25
S-20A	Sliding T Handle, 11" Long	1.00	SB-30	Screwdriver, Blade $\frac{7}{64} \times 1\frac{1}{16}$ "	.14
*S-40	Flexible Hinge Handle, 12" Long	1.50	SB-40	Screwdriver, Blade $\frac{3}{32} \times 1\frac{1}{4}$ "	.16
*S-41	Flexible Hinge Handle, 17" Long	2.00	FS-130	Adapter, $\frac{3}{8}$ " Sq. Female, $\frac{1}{2}$ " Sq. Male	.13
S-42B	Sliding Bar, $\frac{1}{16}$ " Diam. x 9" Long	.35	FS-131	Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Female	.13
S-30	Offset Handle, 12" Long	.88	SH-130	Adapter, $\frac{1}{2}$ " Sq. Female, $\frac{3}{4}$ " Sq. Male	.25
S-10	Speeder with Knurled Spin Grip, $14\frac{1}{2}$ " Long	1.75	SH-131	Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female	.25
S-15	Speeder with Knurled Spin Grip, $19\frac{1}{2}$ " Long	2.00	FS-151	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Male	.25
*May be used as an Extension; Knurled Handle has $\frac{1}{16}$ " diameter cross hole for bar.			SH-151	Plug Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Male	.30
			S-150	Plug Connector, $\frac{1}{2}$ "	.25



1/2"

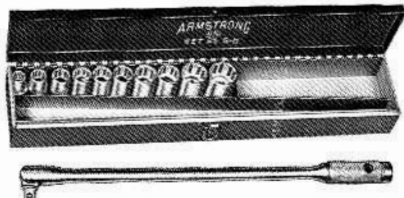
ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series—1/2" Square Drive

Set No. S-11

Contents

11 Pieces: 10 Sockets, 1 Drive Part.
Complete with Steel Case No. C-13. Approximate weight, 5 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	1/16	ST-1222	11/16
ST-1216	1/8	ST-1224	3/4
ST-1218	9/16	ST-1225	25/32
ST-1219	19/32	ST-1228	7/8
ST-1220	5/8	ST-1232	1

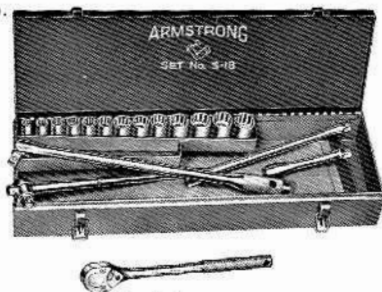
Drive Parts

No. S-41, Flexible Hinge Handle, 17" Long.

Set No. S-18

Contents

18 Pieces: 13 Sockets, 5 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight, 20 3/4 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	1/16	ST-1225	25/32
ST-1216	1/8	ST-1226	13/16
ST-1218	9/16	ST-1228	7/8
ST-1219	19/32	ST-1230	15/16
ST-1220	5/8	ST-1231	31/32
ST-1222	11/16	ST-1232	1
ST-1224	3/4		

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2" Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-110P, Extension, 5 1/4" Long.
No. S-115P, Extension, 10 1/2" Long.

Set No. S-12

Contents

12 Pieces: 10 Sockets, 2 Drive Parts.
Complete with Steel Case No. C-13. Approximate weight, 5.33 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	1/16	ST-1222	11/16
ST-1216	1/8	ST-1224	3/4
ST-1218	9/16	ST-1225	25/32
ST-1219	19/32	ST-1228	7/8
ST-1220	5/8	ST-1232	1

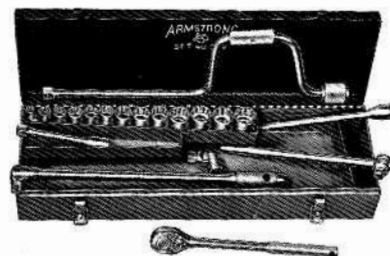
Drive Parts

No. S-91, Reversible Ratchet, 10 1/2" Long.
No. S-110P, Extension, 5 1/4" Long.

Set No. S-20

Contents

20 Pieces: 13 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight, 23 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	1/16	ST-1225	25/32
ST-1216	1/8	ST-1226	13/16
ST-1218	9/16	ST-1228	7/8
ST-1219	19/32	ST-1230	15/16
ST-1220	5/8	ST-1231	31/32
ST-1222	11/16	ST-1232	1
ST-1224	3/4		

Drive Parts

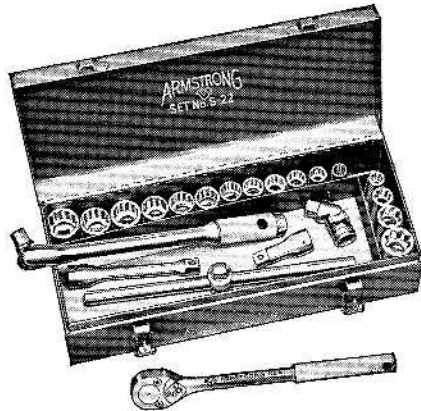
No. S-91, Reversible Ratchet, 10 1/2" Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-15, Speeder, 19 1/2" Long.
No. S-110P, Extension, 5 1/4" Long.
No. S-115P, Extension, 10 1/2" Long.
No. S-140, Universal Joint.



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series— $\frac{1}{2}$ " Square Drive

$\frac{1}{2}$ "



Set No. S-22

Contents

Basic Set of 22 Pieces: 16 Sockets, 6 Drive Parts.
Complete with Steel Case No. C-15. Approximate weight, 11.5 lb.

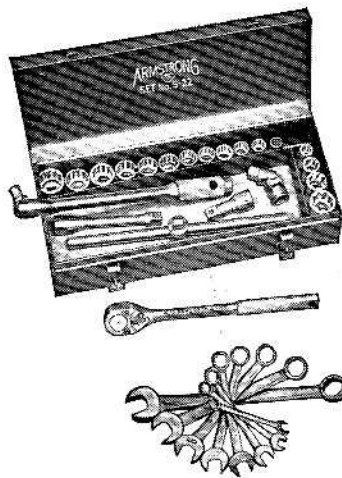
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{1}{16}$	ST-1220	$\frac{5}{8}$	ST-1226	$\frac{13}{16}$	S-812	$\frac{3}{8}$
ST-1216	$\frac{1}{8}$	ST-1222	$\frac{11}{16}$	ST-1228	$\frac{7}{8}$	S-816	$\frac{1}{2}$
ST-1218	$\frac{9}{16}$	ST-1224	$\frac{3}{4}$	ST-1230	$\frac{15}{16}$	S-820	$\frac{5}{8}$
ST-1219	$\frac{19}{32}$	ST-1225	$\frac{25}{32}$	ST-1232	1	S-824	$\frac{3}{4}$

Drive Parts

No. S-91, Reversible Ratchet, $10\frac{1}{2}$ " Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-40, Flexible Hinge Handle, 12" Long.
No. S-102P, Extension, $2\frac{1}{2}$ " Long.
No. S-110P, Extension, $5\frac{1}{4}$ " Long.
No. S-140, Universal Joint.

Set No. S-22A



Contents

Basic Set No. S-22, shown above, plus 1 No. 1108C, 8-Piece Combination Wrench Set, contents listed below.

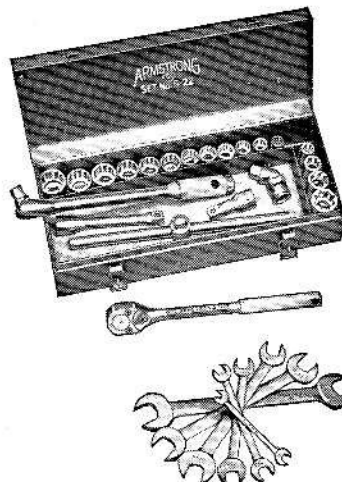
Complete with Steel Case No. C-15.

Approximate weight, 12.6 lb.

Combination Wrenches

One Each No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$
1161	$\frac{1}{16}$ & $\frac{1}{16}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$
1165	$\frac{1}{16}$ & $\frac{1}{16}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$
1167	$\frac{7}{8}$ & $\frac{7}{8}$

Set No. S-22B



Contents

Basic Set No. S-22, shown above, plus 1 No. 6A-26C, 6-Piece Engineers' Wrench Set, contents listed below.

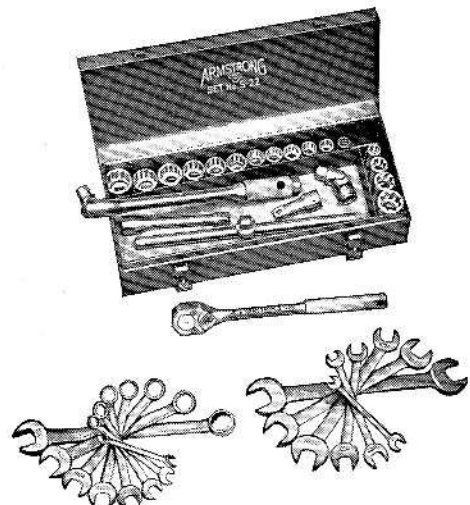
Complete with Steel Case No. C-15.

Approximate weight, 13.5 lb.

Engineers' Wrenches

One Each No.	Nominal Openings Inches
1723	$\frac{3}{8}$ & $\frac{1}{16}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$
1029	$\frac{1}{16}$ & $\frac{25}{32}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1033-C	$\frac{15}{16}$ & 1
.....
.....

Set No. S-22C



Contents

Basic Set No. S-22, shown above, plus 1 No. 1108C 8-Piece Combination Wrench Set and 1 No. 6A-26C 6-Piece Engineers' Wrench Set, contents listed below.

Complete with Steel Case No. C-15.

Approximate weight, 14.6 lb.

Combination Wrenches

Engineers' Wrenches

One Each No.	Nominal Openings Inches	One Each No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	1723	$\frac{3}{8}$ & $\frac{1}{16}$
1161	$\frac{1}{16}$ & $\frac{1}{16}$	1025	$\frac{1}{2}$ & $\frac{19}{32}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$	1727	$\frac{9}{16}$ & $\frac{5}{8}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	1029	$\frac{1}{16}$ & $\frac{25}{32}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1165	$\frac{1}{16}$ & $\frac{1}{16}$	1033-C	$\frac{15}{16}$ & 1
1166	$\frac{3}{4}$ & $\frac{3}{4}$	.....	.....
1167	$\frac{7}{8}$ & $\frac{7}{8}$	.....	.....



1/2"

ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series—1/2" Square Drive

Set No. S-25



Contents

25 Pieces: 18 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight,
25 1/2 lb.

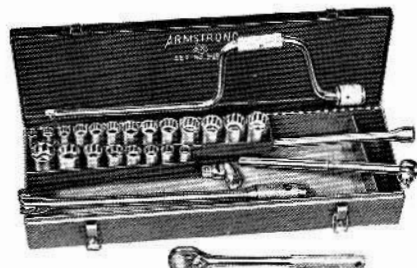
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	7/16	ST-1228	7/8
ST-1216	1/2	ST-1230	15/16
ST-1218	9/16	ST-1231	31/32
ST-1219	19/32	ST-1232	1
ST-1220	5/8	SD-1222	11/16
ST-1222	11/16	SD-1226	13/16
ST-1224	3/4	SD-1228	7/8
ST-1225	25/32	SD-1230	15/16
ST-1226	13/16	SD-1236	1 1/8

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2".
No. S-41, Flexible Hinge Handle, 17".
No. S-20A, Sliding T Handle, 11".
No. S-15, Speeder, 19 1/2".
No. S-110P, Extension, 5 1/4".
No. S-115P, Extension, 10 1/2".
No. S-140, Universal Joint.

Set No. S-28



Contents

28 Pieces: 21 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17. Approximate weight,
25 1/2 lb.

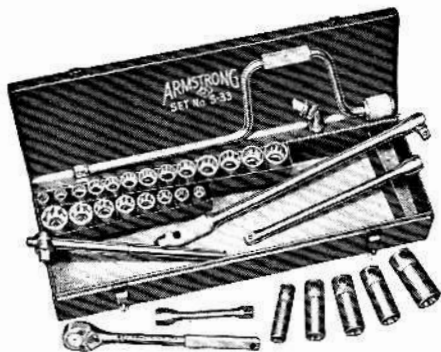
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	7/16	ST-1231	31/32
ST-1216	1/2	ST-1232	1
ST-1218	9/16	S-812	3/8
ST-1219	19/32	S-814	7/16
ST-1220	5/8	S-816	1/2
ST-1222	11/16	S-818	9/16
ST-1224	3/4	S-820	5/8
ST-1225	25/32	S-822	11/16
ST-1226	13/16	S-824	3/4
ST-1228	7/8	S-828	7/8
ST-1230	15/16	...	...

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2".
No. S-41, Flexible Hinge Handle, 17".
No. S-20A, Sliding T Handle, 11".
No. S-15, Speeder, 19 1/2".
No. S-110P, Extension, 5 1/4".
No. S-115P, Extension, 10 1/2".
No. S-140, Universal Joint.

Set No. S-33



Contents

33 Pieces: 26 Sockets, 7 Drive Parts.
Complete with Steel Case No. C-17.
Approximate weight, 27 1/4 lb.

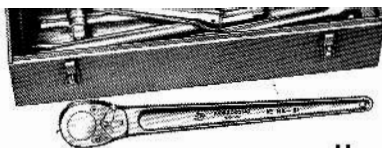
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	7/16	ST-1228	7/8	S-822	11/16
ST-1216	1/2	ST-1230	15/16	S-824	3/4
ST-1218	9/16	ST-1231	31/32	S-828	7/8
ST-1219	19/32	ST-1232	1	SD-1222	11/16
ST-1220	5/8	S-812	3/8	SD-1226	13/16
ST-1222	11/16	S-814	7/16	SD-1228	7/8
ST-1224	3/4	S-816	1/2	SD-1230	15/16
ST-1225	25/32	S-818	9/16	SD-1236	1 1/8
ST-1226	13/16	S-820	5/8	.....	.....

Drive Parts

No. S-91, Reversible Ratchet, 10 1/2" Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-15, Speeder, 19 1/2" Long.
No. S-110P, Extension, 5 1/4" Long.
No. S-115P, Extension, 10 1/2" Long.
No. S-140, Universal Joint.

See page 91 for dimensions of steel cases



No. **S-110P**, Extension, $5\frac{1}{4}$ " Long.
 No. **S-115P**, Exten., $10\frac{1}{2}$ " Long.
 No. **S-140**, Universal Joint.
 No. **SH-130**, Adapter, $\frac{1}{2}$ " Sq. Female, $\frac{3}{4}$ " Sq. Male.

Heavy Duty Series— $\frac{3}{4}$ " Square Drive

Sockets

One Each No.	Nominal Open, In.	One Each No.	Nominal Open, In.	One Each No.	Nominal Open, In.
H-1234	$1\frac{1}{16}$	H-1242	$1\frac{5}{16}$	H-1248	$1\frac{1}{2}$
H-1236	$1\frac{1}{8}$	H-1244	$1\frac{3}{8}$	H-1252	$1\frac{5}{8}$
H-1240	$1\frac{1}{4}$	H-1246	$1\frac{7}{16}$	.....	...

Drive Parts

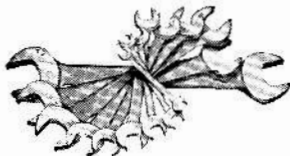
No. **HA-51**, Reversible Ratchet, 19" Long.
 No. **H-20A**, Sliding T Handle, $17\frac{1}{2}$ " Long.
 No. **H-41**, Flexible Hinge Handle, 22" Long.
 No. **H-110**, Extension, 8" Long.
 No. **H-115**, Extension, $15\frac{1}{2}$ " Long.
 No. **H-140**, Universal Joint.
 No. **SH-131**, Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female.

Set No. S-H-36A

Contents

45 Pieces: 21 Sockets, 15 Drive Parts, as listed in Set No. S-H-36 above, plus 1 No. 9A-38C 9-Piece Engineers' Wrench Set, illustrated and listed below.

Complete in Steel Case No. C-29 and Tote Tray No. CT-5.
 Approximate weight, 53 lb.



Engineers' Wrenches

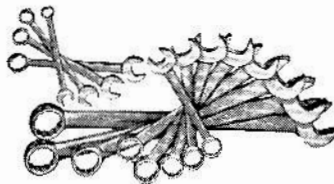
One Each No.	Nom. Opening Inches	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$1\frac{1}{16}$ & 1	$10\frac{7}{8}$
1037	$1\frac{1}{8}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1037-A	$1\frac{1}{8}$ & $1\frac{3}{8}$	$12\frac{3}{4}$
1041	$1\frac{1}{8}$ & $1\frac{5}{8}$	$15\frac{3}{4}$
.....
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.....

Set No. S-H-36B

Contents

48 Pieces: 21 Sockets, 15 Drive Parts, as listed in Set No. S-H-36 above, plus 1 No. 1112C 12-Piece Combination Wrench Set, illustrated and listed below.

Complete in Steel Case No. C-29 and Tote Tray No. CT-5.
 Approximate weight, 49 lb.



Combination Wrenches

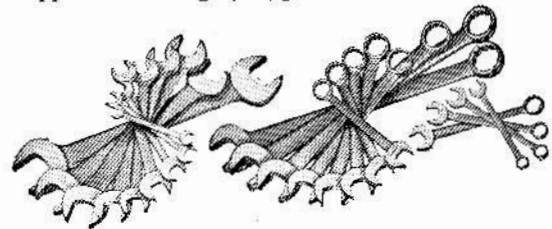
One Each No.	Nom. Opening Inches	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$	$7\frac{1}{8}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1166-A	$\frac{25}{32}$ & $\frac{25}{32}$	8
1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
1168-L	$1\frac{1}{16}$ & $1\frac{1}{16}$	$13\frac{1}{8}$
1170-L	1 & 1	$13\frac{1}{8}$

Set No. S-H-36C

Contents

57 Pieces: 21 Sockets, 15 Drive Parts, as listed in Set No. S-H-36 above, plus 1 No. 9A-38C 9-Piece Engineers' Wrench Set and 1 No. 1112C 12-Piece Combination Wrench Set, illustrated and listed below.

Complete in Steel Case No. C-29 and Tote Tray No. CT-5.
 Approximate weight, 58 $\frac{1}{2}$ lb.



Engineers' Wrenches

One Each No.	Nom. Open. Inches	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$1\frac{1}{16}$ & 1	$10\frac{7}{8}$
1037	$1\frac{1}{8}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1037-A	$1\frac{1}{8}$ & $1\frac{3}{8}$	$12\frac{3}{4}$
1041	$1\frac{1}{8}$ & $1\frac{5}{8}$	$15\frac{3}{4}$
.....
.....
.....

Combination Wrenches

One Each No.	Nom. Open. Inches	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$	$7\frac{1}{8}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1166-A	$\frac{25}{32}$ & $\frac{25}{32}$	8
1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
1168-L	$1\frac{1}{16}$ & $1\frac{1}{16}$	$13\frac{1}{8}$
1170-L	1 & 1	$13\frac{1}{8}$



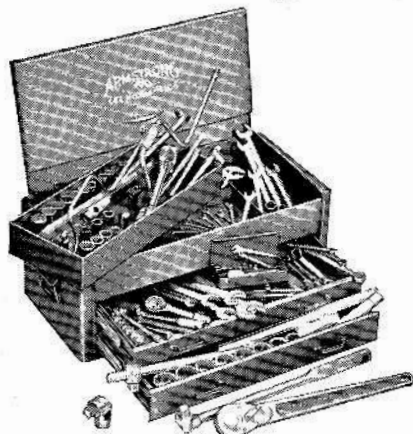
ARMSTRONG ARMALLOY SOCKET WRENCH SET

MASTER MECHANICS' SET NO. NM-H-106—COMPLETE ASSORTMENT

A carefully selected assortment of $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " Square Drive ARMSTRONG Armalloy Sockets and Drive Parts together with Engineers' Wrenches, Combination Wrenches, Box Socket Wrenches and Pliers. Included are all required openings from $\frac{3}{16}$ to $1\frac{5}{8}$ ".

Contents

106 Pieces: 44 Sockets, 30 Drive Parts, 30 Wrenches, 2 Pliers. Complete in Steel Case No. C-31 with Tote Tray No. CT-5 and Steel Case No. C-1. Approx. weight, 85 lb.



$\frac{1}{4}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
NM-606	$\frac{3}{16}$	NM-609	$\frac{9}{32}$	NM-1212	$\frac{3}{8}$
NM-607	$\frac{7}{32}$	NM-1210	$\frac{5}{16}$	NM-1214	$\frac{1}{2}$
NM-608	$\frac{1}{4}$	NM-1211	$\frac{11}{32}$	.....	..

NM-91, Reversible Ratchet, $4\frac{1}{2}$ " Long.
 NM-20A, Sliding T Handle, $4\frac{1}{2}$ " Long.
 NM-106, Shock-Proof Handle, 6" Long.
 NM-140, Universal Joint.
 C-1, Steel Case

$\frac{3}{8}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
F-1212	$\frac{3}{8}$	F-1216	$\frac{1}{2}$	F-1222	$1\frac{1}{16}$
F-1214	$\frac{7}{16}$	F-1218	$\frac{9}{16}$	F-1224	$\frac{3}{4}$
.....	..	F-1220	$\frac{5}{8}$	.....	..

F-91, Reversible Ratchet, 7" Long.
 F-20A, Sliding T Handle, $6\frac{1}{2}$ " Long.
 F-40, Flexible Hinge Handle, $8\frac{1}{2}$ " Long.
 F-15, Speeder, $16\frac{1}{2}$ " Long.
 F-103, 3" Extension.
 F-110, 6" Extension.
 F-115, $10\frac{1}{2}$ " Extension.
 F-140, Universal Joint.
 FP-22, Phillips Screw Driver Attachment No. 2 Drive Fits No. 6-9 Screws.
 FP-32, Phillips Screw Driver Attachment No. 3 Drive Fits No. 10-16 Screws.

$\frac{1}{2}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
ST-1214	$\frac{1}{2}$	ST-1225	$2\frac{5}{16}$	SD-1226	$1\frac{3}{16}$
ST-1216	$\frac{1}{2}$	ST-1226	$1\frac{3}{16}$	SD-1228	$\frac{7}{8}$
ST-1218	$\frac{9}{16}$	ST-1228	$\frac{7}{8}$	SD-1232	1
ST-1219	$1\frac{1}{16}$	ST-1230	$1\frac{5}{16}$	S-814	$\frac{1}{16}$
ST-1220	$\frac{5}{8}$	ST-1231	$1\frac{5}{16}$	S-816	$\frac{1}{2}$
ST-1222	$1\frac{1}{16}$	ST-1232	1	S-818	$\frac{9}{16}$
ST-1224	$\frac{3}{4}$	SD-1222	$1\frac{1}{16}$	S-820	$\frac{5}{8}$

$\frac{1}{2}$ " Square Drive

S-91, Reversible Ratchet, $10\frac{1}{2}$ " Long.
 S-20A, Sliding T Handle, 11" Long.
 S-41, Flexible Hinge Handle, 17" Long.
 S-15, Speeder, $19\frac{1}{2}$ " Long.
 S-102P, $2\frac{1}{2}$ " Extension.
 S-110P, $5\frac{1}{4}$ " Extension.
 S-115P, $10\frac{1}{2}$ " Extension.
 S-140, Universal Joint.

$\frac{3}{4}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
H-1234	$1\frac{1}{16}$	H-1242	$1\frac{3}{16}$	H-1248	$1\frac{1}{2}$
H-1236	$1\frac{1}{8}$	H-1244	$1\frac{3}{8}$	H-1252	$1\frac{5}{8}$
H-1240	$1\frac{1}{4}$	H-1246	$1\frac{1}{2}$	.....	..

HA-51, Reversible Ratchet, 19" Long.
 H-20A, Sliding T Handle, $17\frac{1}{2}$ " Long.
 H-41, Flexible Hinge Handle, 22" Long.
 H-104, 4" Extension.
 H-110, 8" Extension.
 H-115, $15\frac{1}{2}$ " Extension.
 H-140, Universal Joint.

Armstrong Double Head Engineers' Wrenches

One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{1}{16}$	$4\frac{7}{8}$	1033-C	$1\frac{5}{16}$ & 1	$10\frac{7}{8}$
1025	$\frac{1}{2}$ & $1\frac{1}{32}$	$6\frac{1}{8}$	1037	$1\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$	1037-A	$1\frac{1}{8}$ & $1\frac{5}{16}$	$12\frac{3}{4}$
1029	$1\frac{1}{16}$ & $2\frac{1}{32}$	$8\frac{1}{2}$	1041	$1\frac{1}{16}$ & $1\frac{3}{8}$	$15\frac{3}{4}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.....	.....	.....

Armstrong Combination Wrenches

One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
1157	$\frac{7}{32}$ & $\frac{1}{32}$	3	1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1158	$\frac{1}{4}$ & $\frac{1}{4}$	3	1163	$\frac{9}{16}$ & $\frac{5}{16}$	$5\frac{1}{8}$
1158-A	$\frac{9}{32}$ & $\frac{3}{32}$	$3\frac{1}{2}$	1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1159	$\frac{9}{16}$ & $\frac{3}{16}$	$3\frac{1}{2}$	1165	$1\frac{1}{16}$ & $1\frac{1}{16}$	$7\frac{1}{8}$
1159-A	$1\frac{1}{32}$ & $1\frac{1}{32}$	$4\frac{1}{4}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{1}{4}$	1167-A	$1\frac{1}{16}$ & $1\frac{1}{16}$	$10\frac{1}{2}$
1161	$\frac{7}{16}$ & $\frac{1}{16}$	5	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$

Armstrong Box Socket Wrenches

15° Angle Offset Long Pattern			45° Angle, Double Offset Short Pattern		
One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
7723	$\frac{3}{8}$ & $\frac{1}{16}$	$7\frac{3}{8}$	9723	$\frac{3}{8}$ & $\frac{1}{16}$	$4\frac{1}{2}$
7025	$\frac{1}{2}$ & $1\frac{1}{32}$	$8\frac{1}{4}$	9725	$\frac{1}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$
7727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{1}{4}$	9727	$\frac{9}{16}$ & $\frac{5}{8}$	6
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12	.....	.....	.....
7033-C	$1\frac{1}{16}$ & 1	$13\frac{3}{4}$	.....	.....	.....

Pliers

1519-A, 5" Length, 3-Position Rib-Joint.
 1520-A, 10" Length, 5-Position Rib-Joint.

ARMSTRONG ARMALLOY SOCKET WRENCH SET GENERAL MECHANICS' SET NO. NM-S-150—COMPLETE ASSORTMENT

A specially selected assortment of $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ " Square Drive Sockets and Drive Parts together with Engineers' Wrenches, Combination Wrenches, Box Socket Wrenches, Screw Drivers, Punches, Chisels, an Adjustable Wrench, a Combination Slip-joint Pliers and a Ball Pein Hammer.

Contents:

150 Pieces: 69 Sockets, 26 Drive Parts, 8 Open End Wrenches, 6 Box Socket Wrenches, 18 Combination Wrenches, 11 Screwdrivers, 7 Punches, 2 Chisels, 1 Each, Adjustable Wrench, Pliers, Ball Pein Hammer. Complete in Steel Case No. C-33 with No. CT-5 Tote Tray and Steel Case No. C-3. Approx. wt. 88 lbs.



$\frac{1}{4}$ " Square Drive

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
NM-606	$\frac{3}{16}$	NM-612	$\frac{3}{8}$	NMD-610	$\frac{5}{16}$
NM-607	$\frac{7}{32}$	NM-614	$\frac{7}{16}$	NMD-611	$\frac{11}{32}$
NM-608	$\frac{1}{4}$	NM-1216	$\frac{1}{2}$	NMD-612	$\frac{3}{8}$
NM-609	$\frac{9}{32}$	NM-1218	$\frac{9}{16}$	NMD-614	$\frac{7}{16}$
NM-610	$\frac{5}{16}$	NMD-608	$\frac{1}{4}$	NMD-616	$\frac{1}{2}$
NM-611	$\frac{11}{32}$	NMD-609	$\frac{9}{32}$		

NM-91, Reversible Ratchet.
NM-106, Shock-Proof Handle.
NM-42, Flexible Hinge Handle.
NM-20A, Sliding T Handle.
NM-102, 2" Extension.
NM-115, 6" Extension.
NM-116, 14" Extension.
NM-140, Universal Joint.
C-3, Steel Case

$\frac{3}{8}$ " Square Drive

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
F-612	$\frac{3}{8}$	F-1228	$\frac{7}{8}$	FD-626	$\frac{13}{16}$
F-614	$\frac{7}{16}$	FD-612	$\frac{3}{8}$	FX-1212	$\frac{3}{8}$
F-616	$\frac{1}{2}$	FD-614	$\frac{7}{16}$	FX-1214	$\frac{7}{16}$
F-618	$\frac{9}{16}$	FD-616	$\frac{1}{2}$	FX-1216	$\frac{1}{2}$
F-620	$\frac{5}{8}$	FD-618	$\frac{9}{16}$	FX-1218	$\frac{9}{16}$
F-622	$\frac{11}{16}$	FD-620	$\frac{5}{8}$	FX-1220	$\frac{5}{8}$
F-624	$\frac{3}{4}$	FD-622	$\frac{11}{16}$	FX-1222	$\frac{11}{16}$
F-1226	$\frac{13}{16}$	FD-624	$\frac{3}{4}$	FX-1224	$\frac{3}{4}$

F-91, Reversible Ratchet.
F-40, Flexible Hinge Handle.
F-20A, Sliding T Handle.
F-15, Speeder.
F-103, 3" Extension.
F-115, 10 $\frac{1}{2}$ " Extension.
F-117, 17" Extension.
F-140, Universal Joint.
FP-22, #2 Phillips Screwdriver Socket.
FP-32, #3 Phillips Screwdriver Socket.

$\frac{1}{2}$ " Square Drive

One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.	One Each No.	Nominal Open. In.
ST-1212	$\frac{3}{8}$	ST-1228	$\frac{7}{8}$	SD-1222	$\frac{11}{16}$
ST-1214	$\frac{7}{16}$	ST-1230	$\frac{15}{16}$	SD-1224	$\frac{3}{4}$
ST-1216	$\frac{1}{2}$	ST-1232	1	SD-1226	$\frac{13}{16}$
ST-1218	$\frac{9}{16}$	ST-1234	$\frac{11}{16}$	SD-1228	$\frac{7}{8}$
ST-1219	$\frac{19}{32}$	ST-1236	$\frac{11}{8}$	SD-1230	$\frac{13}{16}$
ST-1220	$\frac{5}{8}$	ST-1238	$\frac{13}{16}$	SD-1232	1
ST-1222	$\frac{11}{16}$	ST-1240	$\frac{11}{4}$	SD-1234	$\frac{11}{16}$
ST-1224	$\frac{3}{4}$	SD-1216	$\frac{1}{2}$	SD-1236	$\frac{11}{8}$
ST-1226	$\frac{25}{32}$	SD-1218	$\frac{9}{16}$		
ST-1228	$\frac{13}{16}$	SD-1220	$\frac{5}{8}$		

S-91, Reversible Ratchet.
S-20A, Sliding T Handle.
S-41, 17" Flex. Hinge Handle.
S-15, 19 $\frac{1}{2}$ " Speeder.
S-102P, 21 $\frac{1}{8}$ " Extension.
S-115P, 10 $\frac{1}{2}$ " Extension.
S-121P, 20" Extension.
S-140, Universal Joint.

Armloy Double Head Engineers' Wrenches

One Each No.	Nominal Open. In.	Lgth. In.	One Each No.	Nominal Open. In.	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	4 $\frac{1}{8}$	1731	$\frac{3}{4}$ & $\frac{13}{16}$	9 $\frac{1}{4}$
1725-B	$\frac{1}{2}$ & $\frac{9}{16}$	6 $\frac{1}{8}$	1033-A	$\frac{13}{16}$ & $\frac{7}{8}$	10
1027-B	$\frac{5}{8}$ & $\frac{11}{16}$	7 $\frac{1}{4}$	1735	1 & $\frac{11}{8}$	11 $\frac{3}{4}$
1028	$\frac{19}{32}$ & $\frac{23}{32}$	7 $\frac{1}{8}$	1037	$\frac{11}{16}$ & $\frac{11}{4}$	12 $\frac{3}{4}$

Box Socket Wrenches—45° Angle Double Offset—Long Pattern

No.	Openings, Inches	Lgth., In.	No.	Openings, Inches	Lgth., In.
8723	$\frac{3}{8}$ & $\frac{7}{16}$	7 $\frac{3}{4}$	8029	$\frac{11}{16}$ & $\frac{25}{32}$	11
8025	$\frac{1}{2}$ & $\frac{19}{32}$	8 $\frac{3}{4}$	8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12 $\frac{1}{2}$
8727	$\frac{9}{16}$ & $\frac{5}{8}$	9 $\frac{3}{4}$	8033-C	$\frac{13}{16}$ & 1	14 $\frac{1}{2}$

Armloy Combination Wrenches

One Each No.	Nominal Open. In. (Both Ends)	Lgth. In.	One Each No.	Nominal Open. In. (Both Ends)	Lgth. In.
1159	$\frac{5}{16}$	31 $\frac{1}{2}$	1166	$\frac{3}{4}$	8
1159-A	$\frac{11}{32}$	4 $\frac{1}{4}$	1166-A	$\frac{25}{32}$	8
1160	$\frac{3}{8}$	4 $\frac{1}{4}$	1167-AL	$\frac{13}{16}$	12 $\frac{1}{8}$
1161	$\frac{7}{16}$	5	1167-L	$\frac{7}{8}$	12 $\frac{1}{8}$
1162	$\frac{1}{2}$	5 $\frac{1}{4}$	1168-L	$\frac{15}{16}$	13 $\frac{1}{8}$
1163	$\frac{9}{16}$	5 $\frac{7}{8}$	1170-L	1	13 $\frac{1}{8}$
1163-A	$\frac{19}{32}$	5 $\frac{7}{8}$	1171-L	$\frac{11}{16}$	15
1164	$\frac{5}{8}$	6 $\frac{1}{4}$	1172-L	$\frac{11}{8}$	15
1165	$\frac{11}{16}$	7 $\frac{1}{8}$	1173-L	$\frac{11}{4}$	18 $\frac{1}{8}$

Screwdrivers

Square Shank, No.	Tip Width Inches	Blade Length Inches	Square Shank, No.	Tip Width Inches	Blade Length Inches
3050	$\frac{1}{4}$	11 $\frac{1}{4}$	3060	$\frac{5}{16}$	6
3052	$\frac{3}{16}$	4	3064	$\frac{3}{8}$	8
3054	$\frac{1}{4}$	4	3066	$\frac{3}{8}$	12

No.	Phillips No.	Stock Size Inches	Blade Length Inches
3252	2	Stub	1 $\frac{3}{4}$
3254	1	$\frac{3}{16}$	3
3256	2	$\frac{7}{16}$	4
3258	3	$\frac{5}{16}$	6
3260	4	$\frac{3}{8}$	8

Miscellaneous Tools

3398 Center Punch.
3354 Pin Punch.
3358 Pin Punch.
3360 Pin Punch.
3384 Solid Punch.
3388 Solid Punch.
3390 Solid Punch.
3408 Cold Chisel.
3412 Cold Chisel.
1—No. 10 Adj. Wrench.
1—8" Comb. Slip-joint Plier.
1—No. 0 Ball Pein Hammer.



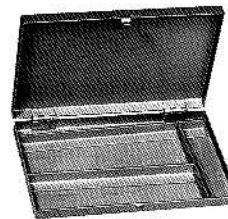
ARMSTRONG TOOL CASES AND CABINETS

ARMSTRONG steel tool cases and cabinets are ruggedly constructed for long service, fitted to simplify tool selection, and attractive in appearance. Constructed of sheet steel generously spot welded. Full length piano type hinges keep case lids in

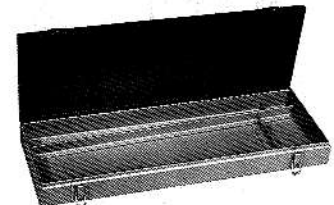
alignment. Handles on larger cases provide adequate finger clearance and permit comfortable toting. Cases are finished in two-tone gray baked enamel with lids dark gray, bases lighter gray.

Case No.	Dimensions, Inches	For Sets Nos.	Illustrated on Page	Approx. Wt. Lb.
C-1	6 $\frac{1}{2}$ x3 $\frac{1}{2}$ x1 $\frac{1}{4}$	NM-10, -10A, -14, -18, -18P, -19, -19P, -24, -24P	77	.63
C-3	8 $\frac{1}{2}$ x5 $\frac{1}{2}$ x1	Special $\frac{1}{4}$ " drive sets	91	1.31
C-5	9 $\frac{1}{4}$ x3 $\frac{1}{4}$ x2 $\frac{3}{8}$	F-10, F-10A, AM-50	80	1.25
C-7	17x5 $\frac{1}{4}$ x3	F-21, -21A, -21B, -21C, F-29	81, 82	4.00
C-11	12x5 $\frac{1}{2}$ x3 $\frac{3}{4}$	AM-100	97	2.75
C-13	17 $\frac{1}{2}$ x3 $\frac{1}{4}$ x2 $\frac{3}{8}$	S-11, S-12	84	2.00
C-15	14x5 $\frac{3}{4}$ x3	S-22, -22A, -22B, -22C	85	3.50
C-17	21x6 $\frac{1}{2}$ x3 $\frac{1}{2}$	S-18, S-20, S-25, S-28, S-33	84, 86	6.38
C-19	22 $\frac{3}{4}$ x7 $\frac{3}{4}$ x2 $\frac{3}{8}$	Special $\frac{1}{2}$ " drive sets	91	5.00
C-21	23x7 $\frac{1}{2}$ x4 $\frac{1}{8}$	H-13, H-15, H-18	93	10.00
C-23	21 $\frac{1}{4}$ x8 $\frac{1}{8}$ x5	X-10	95	9.25
C-25	31x7x4 $\frac{1}{4}$	X-16	95	16.13
C-29*	22 $\frac{3}{4}$ x8 $\frac{5}{8}$ x6	SII-36, -36A, -36B, -36C	87	15.75
C-31*	24x14 $\frac{1}{4}$ x10 $\frac{3}{4}$ Top compartment: 24x11 $\frac{3}{4}$ x3 $\frac{3}{4}$ Drawers: 21 $\frac{1}{4}$ x11x1 $\frac{3}{4}$ 21 $\frac{1}{4}$ x11x3	NM-H-106	88	37.00
C-33*	24x14 $\frac{1}{4}$ x10 $\frac{3}{4}$ Compartment: 24x11 $\frac{3}{4}$ x3 $\frac{3}{4}$ Drawers: 21 $\frac{1}{4}$ x11x1 $\frac{3}{4}$ 21 $\frac{1}{4}$ x11x1 $\frac{3}{4}$	NM-S-150	89	37.13
C-41	18 $\frac{3}{8}$ x5 $\frac{7}{8}$ x3 $\frac{3}{8}$	00 Series Drop Head Pipe Threading Sets	108	4.75
C-43	25 $\frac{1}{4}$ x6 $\frac{1}{2}$ x3 $\frac{5}{8}$	11 Series Drop Head Pipe Threading Sets	108	7.13
C-45	21x5 $\frac{1}{8}$ x3 $\frac{1}{2}$	OD Series Drop Head Pipe Threading Sets	109	8.75
C-47†	26 $\frac{1}{2}$ x10 $\frac{1}{2}$ x7	P-23C Pipe Tool Set	111	32.25
C-50	9 $\frac{1}{2}$ x4x1 $\frac{1}{16}$	7080	122	1.00
C-51	10x6 $\frac{1}{2}$ x1 $\frac{1}{16}$	7090	122	1.75
TC-1000	Mobile Tool Cabinet Overall 26 $\frac{3}{8}$ x17 $\frac{3}{8}$ x32 $\frac{1}{4}$ 2-Top Drawers 22x15 $\frac{3}{4}$ x2 $\frac{7}{8}$ Lower Drawer 22x15 $\frac{3}{4}$ x5 $\frac{1}{2}$ Compartment 23 $\frac{1}{4}$ x17 $\frac{1}{4}$ x9 $\frac{1}{4}$	Top will accommodate: Set No. NM-H-106 or Set No. NM-S-150	91	85.00
TC-2000	Mobile Workbench o.a. width 29 o.a. length 50 o.a. height 37 $\frac{3}{4}$ Workbench 29x32 $\frac{3}{4}$	For Set No. M-266 Platform 17 $\frac{1}{2}$ x29 Drawers 5-13x28x3 5-12x28x3 Total Weight 330 lbs. 6-inch ball bearing casters	90	330.00
CT-5	Tote Tray 22 $\frac{1}{2}$ x8 $\frac{1}{2}$ x3	SH-36, NM-H-106, NM-S-150	88, 89	5.00
CT-7	Tote Tray 25 $\frac{1}{2}$ x9 $\frac{1}{2}$ x3	P-23C	111	7.50
CT-9	Tote Tray 6 $\frac{1}{4}$ x1 $\frac{1}{8}$ x1	A4-66	100	1.00

*This case includes CT-5 Tote Tray. †This case includes CT-7 Tote Tray.



C-3



C-19

TC-1000
(Finished in Red Enamel)

ARMSTRONG PLASTIC ROLLS

ARMSTRONG tool set rolls are made of tough, dark blue, non-cracking plastic with transparent plastic pockets. This grease-, oil-, and stain-resistant material is easily wiped clean. Rolls are amply cut to provide fold-overs which prevent tools from dropping out. All rolls (with the exception of R-29—envelope style) have cloth ties. Rolls are designed to accommodate specific sets as listed.

No.	Number of Pockets	Dimensions		Used for Sets Nos.	Illustrated on Page	Approx. Wt. Lb.
		Width	Height			
R-1	9	21 $\frac{1}{2}$	22 $\frac{1}{2}$	9-38R, 9A-38R	51	.56
R-3	6	11 $\frac{3}{8}$	14 $\frac{1}{8}$	9A-MR, 6-26R, 6A-26R, 6A-MR, RB-6R, 1106R		
R-5	5	7 $\frac{5}{8}$	6 $\frac{3}{4}$	H-5R	51, 58, 56	.19
R-7	11	9 $\frac{3}{4}$	7 $\frac{5}{8}$	1140P	55	.06
R-9	14	13 $\frac{1}{2}$	8	1142P	55	.09
R-11	6	6 $\frac{3}{4}$	8 $\frac{3}{4}$	1186R	55	.14
R-13	6	11 $\frac{3}{4}$	10 $\frac{3}{8}$	1032R	54	.19
R-15	8	16 $\frac{1}{4}$	10	1042R	54	.17
R-17	4	5 $\frac{5}{8}$	10	1104R	54	.20
R-19	18	21 $\frac{5}{8}$	27 $\frac{3}{4}$	1118R	56	.08
R-21	8	11 $\frac{1}{2}$	13 $\frac{7}{8}$	1108R	56	.76
R-23	12	23 $\frac{3}{4}$	20 $\frac{1}{8}$	1112R	56	.19
R-25	3	5 $\frac{1}{2}$	12 $\frac{3}{4}$	RB-3R	57	.58
R-27	4	4 $\frac{3}{4}$	7 $\frac{1}{8}$	1154R	58	.08
R-29	1	6 $\frac{1}{2}$	4 $\frac{1}{2}$	NM-14R	60	.06
R-31	6	10 $\frac{3}{8}$	25	3001	77	.05
R-33	5	9	21 $\frac{3}{4}$	3003	104	.30
R-35	5	6 $\frac{3}{4}$	13 $\frac{7}{8}$	3442	104	.22
R-37	14	18 $\frac{1}{4}$	21 $\frac{1}{2}$	3440	105	.11
R-39	19	18 $\frac{1}{4}$	21 $\frac{1}{2}$	3444	105	.39
					105	.47

3/4"

ARMSTRONG ARMALLOY SOCKET WRENCHES

Heavy Duty Series—3/4" Square Drive

SOCKETS

Made from selected alloy steel.
Gauged to accurate limits.
Heat treated and tested to assure maximum strength.
Finished in chrome plate.



12-Point
Opening



Extra Deep
12-Point
Opening

These sockets are designed for heavy duty service where reliable strength without unnecessary weight is required.

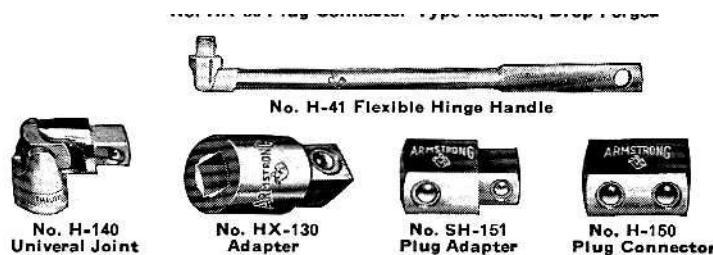
Extra deep sockets are used on heavy U bolts on trucks and busses and on other jobs where bolt protrudes beyond nut farther than usual.

Double Hexagon (12-Point) Openings

Nominal Opening Inches	Regular Sockets		Extra Deep Sockets Cross Hole for 3/4" Bar	
	No.	Approx. Wt., Lb.	No.	Approx. Wt., Lb.
7/8	H-1228	.31		
15/16	H-1230	.31	HD-1230	.75
31/32	H-1231	.38		
1	H-1232	.38		
1 1/16	H-1234	.50	HD-1234	.75
1 1/8	H-1236	.50		
1 3/16	H-1238	.63		
1 1/4	H-1240	.75	HD-1240	1.25
1 5/16	H-1242	.75		
1 3/8	H-1244	.88		
1 7/16	H-1246	.88	HD-1246	1.63
1 1/2	H-1248	1.00		
1 9/16	H-1250	1.00		
1 5/8	H-1252	1.00		
1 11/16	H-1254	1.00		
1 3/4	H-1256	1.25		
1 13/16	H-1258	1.25		
1 7/8	H-1260	1.25		
2	H-1264	1.38		
2 1/16	H-1266	1.38		
2 1/8	H-1268	1.50		
2 3/16	H-1270	1.50		
2 1/4	H-1272	1.75		

DRIVE PARTS





No. HA-51 Reversible Ratchet—Instantly reversible by moving reversing lever from left to right. Stop ball prevents accidental shifting of ratchet action during use. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Working arc is 15°. Bright chrome finish.

No. HA-50 Plug Connector Type Ratchet—In this style, turning the ratchet over reverses its action. Ratchets furnished with removable plug connectors. Ratchets will rotate sockets where working arc is limited to only 15°. All parts of alloy and high tensile steel, heat treated to maximum strength. Length 19". Bright chrome finish.

No.	Description	Approx. Wt., Lb.	No.	Description	Approx. Wt., Lb.
HA-51	Reversible Ratchet, 19" Long.....	5.00	H-115	Extension, 15½" Long.....	2.75
HA-50	Plug Connector Type Ratchet, 19" long.....	5.30	H-140	Universal Joint.....	1.13
HA-50A	Above, less Plug Connector.....	5.05	SH-130	Adapter, ½" Sq. Female, ¾" Sq. Male...	.25
H-20A	Sliding T Handle, 17½" Long.....	2.75	SH-131	Adapter, ½" Sq. Male, ¾" Sq. Female...	.25
H-41	Flexible Hinge Handle, 22" Long. Has ¾" Cross Hole for Bar.....	3.25	HX-130	Adapter, ¾" Sq. Female, 1" Sq. Male....	.59
H-41B	Sliding Bar, ¾"x16"; For No. H-41....	4.4	HX-131	Adapter, ¾" Sq. Male, 1" Sq. Female....	.59
H-104	Extension, 4" Long.....	.88	SH-151	Plug Adapter, ½" Sq. Male, ¾" Sq. Male...	.30
H-110	Extension, 8" Long.....	1.50	HX-151	Plug Adapter, ¾" Sq. Male, 1" Sq. Male...	.40
			H-150	Plug Connector, ¾" Square.....	.25

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Heavy Duty Series— $\frac{3}{4}$ " Square Drive

$\frac{3}{4}$ "

Set No. H-13



Contents

13 Pieces: 10 Sockets, 3 Drive Parts.
Complete with Steel Case No. C-21. Approx. weight, 22 $\frac{1}{4}$ lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	$1\frac{1}{16}$	H-1242	$1\frac{5}{16}$	H-1252	$1\frac{5}{8}$
H-1236	$1\frac{1}{8}$	H-1244	$1\frac{3}{8}$	H-1256	$1\frac{3}{4}$
H-1238	$1\frac{3}{16}$	H-1246	$1\frac{1}{2}$	.....	...
H-1240	$1\frac{1}{4}$	H-1248	$1\frac{1}{2}$	.....	...

Drive Parts

No. H-20A, Sliding T Handle, 17 $\frac{1}{2}$ " Long.
No. H-110, Extension, 8" Long.
No. H-115, Extension, 15 $\frac{1}{2}$ " Long.

Set No. H-15



Contents

15 Pieces: 10 Sockets, 5 Drive Parts.
Complete with Steel Case No. C-21. Approx. weight, 28 $\frac{3}{4}$ lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	$1\frac{1}{16}$	H-1242	$1\frac{5}{16}$	H-1252	$1\frac{5}{8}$
H-1236	$1\frac{1}{8}$	H-1244	$1\frac{3}{8}$	H-1256	$1\frac{3}{4}$
H-1238	$1\frac{3}{16}$	H-1246	$1\frac{1}{2}$	.....	...
H-1240	$1\frac{1}{4}$	H-1248	$1\frac{1}{2}$	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.
No. H-20A, Sliding T Handle, 17 $\frac{1}{2}$ " Long.
No. H-110, Exten. 8" Long.
No. H-115, Exten. 15 $\frac{1}{2}$ " Long.
No. H-140, Universal Joint.

Set No. H-18



Contents

18 Pieces: 10 Sockets, 8 Drive Parts.
Complete with Steel Case No. C-21. Approx. weight, 39 $\frac{1}{2}$ lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	$1\frac{1}{16}$	H-1246	$1\frac{7}{16}$	H-1260	$1\frac{7}{8}$
H-1236	$1\frac{1}{8}$	H-1248	$1\frac{1}{2}$	H-1264	2
H-1240	$1\frac{1}{4}$	H-1252	$1\frac{5}{8}$	.....	...
H-1242	$1\frac{5}{16}$	H-1258	$1\frac{13}{16}$	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.
No. H-20A, Sliding T Handle, 17 $\frac{1}{2}$ " Long.
No. H-41, Flexible Handle, 22" Long.
No. H-41B, Sliding Bar for No. H-41.
No. H-104, Exten., 4" Long.
No. H-110, Exten., 8" Long.
No. H-115, Exten., 15 $\frac{1}{2}$ " Long.
No. H-140, Univer. Joint.



1"

ARMSTRONG ARMALLOY SOCKET WRENCHES

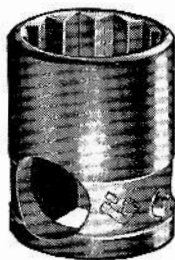
Extra Heavy Duty Series—1" Square Drive

SOCKETS

Made from selected grade alloy steel.

Gauged to accurate limits.

Heat treated and tested to assure maximum strength. Finished in chrome plate.



These sockets are designed for the most severe service where extra strength is required . . . these sockets are equipped with "Drive Lock", a device which eliminates all danger of sockets becoming detached in service. To release socket press the button on the socket and pull.

Sockets have cross hole for 1" diameter sliding bar.

Regular Sockets—Double Hexagon

(12-Point) Openings

Cross Hole for 1" Bar

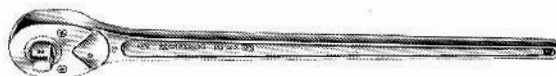
No.	Nominal Opening Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Weight Lb.
X-1234	1 1/16	.50	X-1268	2 1/8	2.75
X-1236	1 1/8	.50	X-1270	2 3/16	3.00
X-1240	1 1/4	.88	X-1272	2 1/4	3.25
X-1244	1 3/8	1.00	X-1276	2 3/8	3.50
X-1246	1 7/16	1.25	X-1280	2 1/2	3.25
X-1248	1 1/2	1.25	X-1282	2 5/16	4.00
X-1252	1 5/8	1.50	X-1284	2 5/8	4.50
X-1258	1 3/4	1.88	X-1288	2 3/4	3.75
X-1260	1 7/8	2.00	X-1294	2 15/16	4.50
X-1264	2	2.25	X-12100	3 1/8	4.25

DRIVE PARTS



Drop Forged

No. XA-51 Reversible Ratchet



Drop Forged

No. XA-50 Plug Connector Type Ratchet



No. X-20B Sliding Handle

No. X-20C Adapter



Nos. X-110 and X-115 Extension Bars



No. X-41 Flexible Hinge Handle

Nos. HX-130, HX-131
AdaptersNo. X-150A
Plug ConnectorNo. HX-151
Plug Adapter

No. XA-51 Reversible Ratchet—Instantly reversible by moving reversing lever from left to right. Stop ball prevents accidental shifting of ratchet action during use. All parts made of alloy or high tensile steel, carefully heat treated to maximum strength. Working arc is 15°. Chrome plate finish. Length, 30".

No. XA-50 Plug Connector Type Ratchet—In this style, turning the ratchets over reverses its action. Ratchets are furnished with removable plug connectors. The ratchets will rotate the sockets where the working arc is limited to only 15°. All parts are accurately made of alloy and high tensile steel, heat treated to maximum strength. Finished in chrome plate. Length, 30".

No.	Description	Approx. Wt., Lb.	No.	Description	Approx. Wt., Lb.
XA-51	Reversible Ratchet, 30" Long	7.0	X-110	Extension Bar, 9" Long, with Cross Hole for 1" Diameter Bar	2.25
XA-50	Plug Connector Type Ratchet	6.3	X-115	Extension Bar, 18" Long, with Cross Hole for 1" Diameter Bar	4.25
XA-50A	Plug Connector Type Ratchet, less Plug Connector, 30" Long	5.8	HX-130	Adapter, 3/4" Sq. Female, 1" Sq. Male	.59
X-20B	Sliding Handle, 1" Diameter, 20" Long	4.0	HX-131	Adapter, 3/4" Sq. Male, 1" Sq. Female	.59
X-20C	Adapter for Sliding Handle No. X-20B	1.0	HX-151	Plug Adapter, 3/4" Sq. Male, 1" Sq. Male	.50
X-41	Flexible Hinge Handle, 27" Long, with Cross Hole for 1" Bar	9.3	X-150A	Plug Connector, 1" Square	.50

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

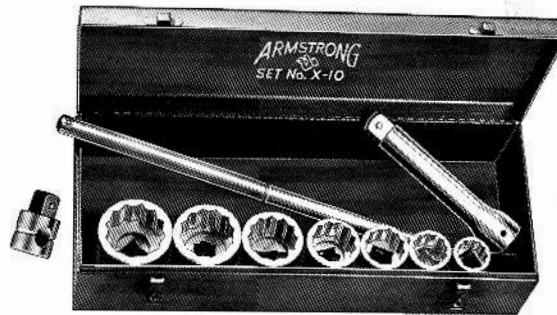


ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Extra Heavy Duty Series—1" Square Drive

These sets are especially recommended for servicing trucks and busses, as well as for general work requiring extra heavy duty tools for severe service.

Set No. X-10



Contents

10 Pieces: 7 Sockets, 3 Drive Parts.
Complete with Steel Case No. C-23. Approximate weight, 32 Lb.

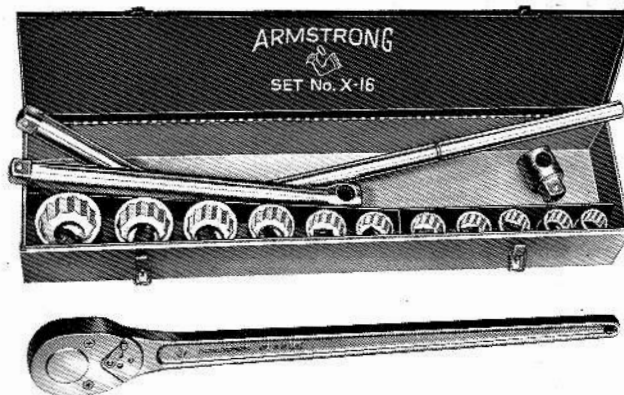
Sockets

No.	Nominal Opening Inches	No.	Nominal Opening Inches
X-1240	1 $\frac{1}{4}$	X-1264	2
X-1246	1 $\frac{1}{8}$	X-1270	2 $\frac{3}{16}$
X-1252	1 $\frac{5}{8}$	X-1276	2 $\frac{3}{8}$
X-1258	1 $\frac{13}{16}$	.....	...

Drive Parts

No.	Description
X-20B	Sliding Handle, 20" Long
X-20C	Adapter for No. X-20B
X-110	Extension, 9" Long

Set No. X-16



Contents

16 Pieces: 11 Sockets, 5 Drive Parts.
Complete with Steel Case No. C-25. Approximate weight, 53 Lb.

Sockets

No.	Nominal Opening Inches	No.	Nominal Opening Inches	No.	Nominal Opening Inches
X-1234	1 $\frac{1}{16}$	X-1246	1 $\frac{1}{16}$	X-1264	2
X-1236	1 $\frac{1}{8}$	X-1248	1 $\frac{1}{2}$	X-1270	2 $\frac{3}{16}$
X-1240	1 $\frac{1}{4}$	X-1252	1 $\frac{5}{8}$	X-1276	2 $\frac{3}{8}$
X-1244	1 $\frac{3}{8}$	X-1258	1 $\frac{13}{16}$	.....	...

Drive Parts

No.	Description
XA-51	Reversible Ratchet, 30" Long
X-20B	Sliding Handle, 20" Long
X-20C	Adapter for No. X-20B
X-110	Extension, 9" Long
X-115	Extension, 18" Long

See page 91 for dimensions of steel cases



ARMSTRONG ARMALLOY ADAPTERS AND PLUG CONNECTORS

With ARMSTRONG Adapters, Sockets of one size drive may be used with Handles and Parts of another size drive.

ADAPTERS



No.	Description
MF-130	1/4" Female—3/8" Male
MF-131	1/4" Male—3/8" Female
FS-130	3/8" Female—1/2" Male
FS-131	3/8" Male—1/2" Female
SH-130	1/2" Female—3/4" Male
SH-131	1/2" Male—3/4" Female
HX-130	3/4" Female—1" Male
HX-131	3/4" Male—1" Female



PLUG ADAPTERS

No.	Description
FM-150	3/8" Male—1/4" Male
FS-151	3/8" Male—1/2" Male
SH-151	1/2" Male—3/4" Male
HX-151	3/4" Male—1" Male

PLUG CONNECTORS

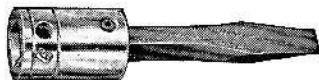
No.	Description	No.	Description
F-150	3/8" Sq.	H-150	3/4" Sq.
S-150	1/2" Sq.	X-150A	1" Sq.

ARMSTRONG ARMALLOY SCREWDRIVERS AND BITS

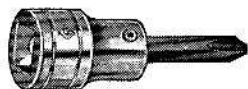
Hexagon stock blades are specially heat treated to give them strength and toughness necessary for long service life. Detachable bits are tempered extremely hard for strength and wearability; easily and inexpensively replaced when necessary.

STANDARD SCREW DRIVERS AND BITS

3/8" Square Drive



No. F-23C



No. FP-22

No.	Sq. Drive, In.	Complete Tool		Holder Only		Bit Only	
		Tip Size Inches	Length Inches	No.	Length Inches	No.	Length Inches
NM-23C	1/4	1/4 x 1/32	3 3/8	NM-23CS	7/8	NM-23CB	2 7/8
F-23C	3/8	1/4 x 1/32	3	F-23CS	1 1/16	F-23CB	2 5/16
F-25C	3/8	5/16 x 3/64	3	F-25CS	1 1/16	F-25CB	2 5/16
F-31C	3/8	3/8 x 1/16	3 7/16	F-31CS	1 1/16	F-31CB	2 3/4

PHILLIPS SCREW DRIVERS AND BITS

The detachable bits are tempered extremely hard for strength and wearability and are easily and inexpensively replaced when necessary.

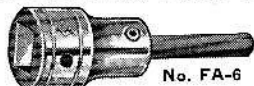
1/4" Square Drive

3/8" Square Drive

Phillips Bit Size	Complete Tool		Holder Only		Bit Only		Phillips Bit Size	Complete Tool		Holder Only		Bit Only	
	No.	Lgth. In.	No.	Lgth. In.	No.	Lgth. In.		No.	Lgth. In.	No.	Lgth. In.	No.	Lgth. In.
1	NMP-12	1 27/32	NMP-12S	2 7/32	NMP-12B	1 5/16	2	FP-22	2 1/16	FP-22S	1 1/16	FP-22B	1 5/16
2	NMP-22	1 27/32	NMP-22S	2 7/32	NMP-22B	1 5/16	3	FP-32	2 5/16	FP-32S	1 3/16	FP-32B	1 5/16
2	NMP-23	3 1/2	NMP-23S	2 7/32	NMP-23B	2 1/2	4	*FP-41	1 11/16	FP-41S	1 1/16	FP-41B	1
							4	FP-42	2 5/16	FP-42S	1 1/16	FP-42B	1 5/8

*Has a short bit for door handle work.

HEX DRIVERS AND BITS



No. FA-6

Wrench Size, In.	Sq. Drive Inches	Complete Tool		Holder Only		Bit Only	
		No.	Length, In.	No.	Length, In.	No.	Length, In.
1/8	1/4	NMA-4	2 1/16	NMA-4S	1 1/16	NMA-4B	1 5/16
5/32	1/4	NMA-5	2 1/16	NMA-5S	1 1/16	NMA-5B	1 9/16
3/16	3/8	FA-6	2 1/16	FA-6S	1 1/16	FA-6B	1 5/16
7/32	3/8	FA-7	2 1/16	FA-7S	1 1/16	FA-7B	1 5/16
1/4	3/8	FA-8	2 1/16	FA-8S	1 1/16	FA-8B	1 5/16
5/16	3/8	FA-10	2 1/16	FA-10S	1 1/16	FA-10B	1 5/8
3/8	1/2	SA-12	2 1/16	SA-12S	1 11/16	SA-12B	1 5/16
1/2	1/2	SA-16	3 1/16	SA-16S	1 11/16	SA-16B	2 1/8
9/16	1/2	SA-18	3 3/16	SA-18S	1 11/16	SA-18B	2 3/8
5/8	1/2	SA-20	3 3/16	SA-20S	1 11/16	SA-20B	2 3/8

RATCHET REPAIR KIT

Contains the following parts, with instructions, in an envelope:

Gear
Shifting lever
Shifter
Two pawls (left and right hand)

Two springs
Face plate
Two plate screws

Kit No.	For Ratchet No.	Drive Size In.
NM-91-RK	NM-91	1/4
F-91-RK	F-91	3/8
S-9192-RK	S-91 & S-92	1/2

ARMSTRONG ARMALLOY HOLLOW SCREW WRENCHES

Sets Nos. AM-100 and AM-50

ARMSTRONG Hollow Screw Wrench Sets provide detachable Hex Head Wrenches, handles, extensions and ratchets for all hexagon socket hollow screws from $\frac{1}{4}$ to 1 inch in diameter.

Sockets and drive parts are made from selected grade alloy steel, heat treated and tested to assure maximum strength. Finished in chrome plate.

Two piece construction of Hex Head Wrenches permits easy replacement of Hexagon Bits, which are held in sockets by means of screws or pins. Bits are rust proof finish.

Hex Head Wrenches

$\frac{1}{4}$ -Inch Square Drive

No.	Size Hexagon Key Inches	Fits Safety Hollow Set Screws, Diam. Inches	Fits 1935 Series Socket Head Cap Screws, Diam. Inches	Fits 1980 Series Socket Head Cap Screws, Diam. Inches
NMA-4	$\frac{3}{16}$	$\frac{1}{4}$	#8	#10
NMA-5	$\frac{5}{16}$	$\frac{3}{8}$	#10 & #12	#10

$\frac{3}{8}$ -Inch Square Drive

FA-6	$\frac{3}{16}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$
FA-7	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{16}$	$\frac{3}{16}$
FA-8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
FA-10	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{3}{8}$

$\frac{1}{2}$ -Inch Square Drive

SA-12	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{1}{2}$ & $\frac{3}{4}$	$\frac{1}{2}$ & $\frac{3}{4}$
SA-16	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
SA-18	$\frac{1}{2}$	1	$\frac{3}{4}$ & $\frac{1}{2}$	$\frac{3}{4}$
SA-20	$\frac{3}{8}$	...	1	$\frac{3}{4}$

Drive Parts

$\frac{1}{4}$ -Inch Square Drive

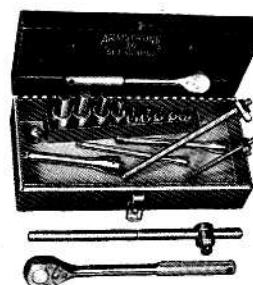
No.	Description
NM-20A	Sliding T Handle
NM-115	Extension

$\frac{3}{8}$ -Inch Square Drive

F-20A	Sliding T Handle
F-91	Reversible Ratchet
F-110	Extension
MF-131	Adapter— $\frac{1}{4}$ " Square Male, $\frac{3}{8}$ " Square Female

$\frac{1}{2}$ -Inch Square Drive

S-20A	Sliding T Handle
S-91	Reversible Ratchet
S-110P	Extension



Set No. AM-100

Set No. AM-100: Consists of on each of all Sockets, Handles and Drive Parts listed; 19 Pieces. Complete in fitted Steel Case No. C-11. Approx. wt., 10 lb.

For complete description of handle and parts, see pages 76, 79 and 83.

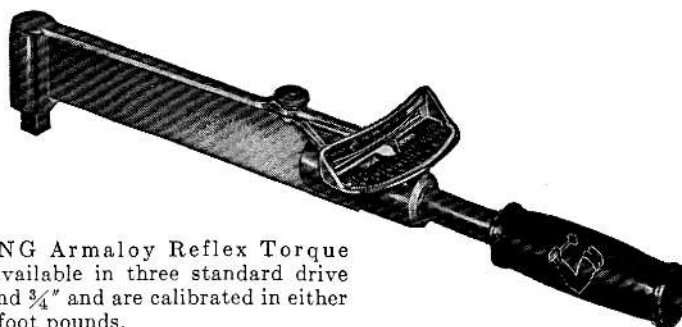
Set No. AM-50: Consists of one each of the following:

NMA-4	FA-7	F-20A	NM-11
NMA-5	FA-8	F-110	MF-13
FA-6	F-91	NM-20A	

11 Pieces, Complete in Steel Case No. C-5. Approximate weight, 6 lb.

ARMSTRONG ARMALLOY REFLEX TORQUE WRENCHES

With Foot-Pound and Inch-Pound Dials



ARMSTRONG Armaloy Reflex Torque Wrenches are available in three standard drive sizes: $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " and are calibrated in either inch pounds or foot pounds.

The ARMSTRONG Reflex Torque Wrench was developed to enable any operator to tighten nuts, screws, and threaded parts to any predetermined torque by sight, sound and feeling—all three simultaneously or by any one individually—to control torque:

1. With Laboratory Accuracy,
2. At Production Line Speed,
3. Automatically and with less fatigue.

The signal mechanism which is built into the yoke and handle of the wrench, sounds a loud and distinct click, also imparts a definite strong impulse to the hand. This mechanism works by the same force used by the operator to generate the desired torque.

Because of its "Automatic" accuracy and wide application, the ARMSTRONG Reflex Torque Wrench permits a far greater degree of product control with the resulting reduction in rejects, spoilage and product failures in the field.

Each wrench is individually boxed.

Foot-Pounds

No.	Torque Capacity, Foot-Pounds	Drive Square, Inches	Overall Length, Inches	Approximate Weight, Lb.
FR25	0 to 25	$\frac{3}{8}$	16	2.75
SR25	0 to 25	$\frac{1}{2}$	16	2.75
FR50	0 to 50	$\frac{3}{8}$	16	2.75
SR50	0 to 50	$\frac{1}{2}$	16	2.75
SR100	0 to 100	$\frac{1}{2}$	17 $\frac{1}{2}$	2.75
SR150	0 to 150	$\frac{1}{2}$	20 $\frac{3}{16}$	3.75
HR200	0 to 200	$\frac{3}{4}$	28 $\frac{5}{8}$	7.75
HR300	0 to 300	$\frac{3}{4}$	34 $\frac{3}{4}$	10.75

Inch-Pounds

No.	Torque Capacity, Inch-Pounds	Drive Square, Inches	Overall Length, Inches	Approximate Weight, Lb.
FR300-I	0 to 300	$\frac{3}{8}$	16	2.75
SR300-I	0 to 300	$\frac{1}{2}$	16	2.75
FR600-I	0 to 600	$\frac{3}{8}$	16	2.75
SR600-I	0 to 600	$\frac{1}{2}$	16	2.75
SR1200-I	0 to 1200	$\frac{1}{2}$	17 $\frac{1}{2}$	2.75
SR1800-I	0 to 1800	$\frac{1}{2}$	20 $\frac{3}{16}$	3.75
HR2400-I	0 to 2400	$\frac{3}{4}$	28 $\frac{5}{8}$	7.75
HR3600-I	0 to 3600	$\frac{3}{4}$	34 $\frac{3}{4}$	10.75



ARMSTRONG REVERSIBLE BRIDGE WRENCHES

For Bridge, Structural and Erecting Work

Sockets used with this ratchet are drilled to permit bolts to pass completely through, facilitating the turning of nuts all the way down on long bolts. Sockets are machined from solid selected steel, with teeth hob cut, hardened and finished in Parco Lubrite. They slip easily into the ratchet and are

held securely by means of a steel retaining ring.

Ratchet is drop forged from selected steel, for extra strength, and is finished in Parco Lubrite. Reversing mechanism operates smoothly and easily. All parts are made of steel and are finished in Parco Lubrite.



Ratchet Wrenches (Without Sockets)

No.	Length Inches	Approx. Wt., Lb.
2-BR	24	10
3-BR	36	23

BRIDGE SOCKETS

Square and Hexagon

1 to 3 1/8"

Nominal Openings

Sockets are machined from solid selected steel and properly hardened.

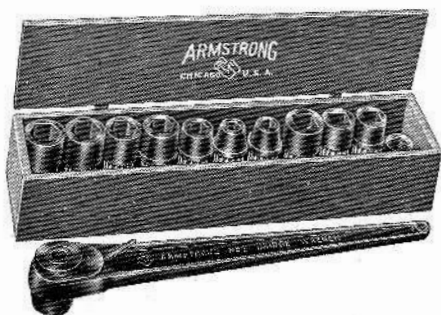
Teeth are hob cut.



Hex Socket



Square Socket



No. BR-12 BRIDGE RATCHET SET

Contents

Set consists of 1 No. 2-BR Reversible Ratchet Socket Wrench and 11 sockets. Complete in wooden box.

Hexagon Sockets			Square Sockets		
No.	Nominal Opening Size Across Flats Inches	No.	No.	Nominal Opening Size Across Flats Inches	No.
8662	1 1/16	8670	1 13/16	8682	1 1/8
8664	1 1/8	8672	2	8684	1 1/4
8667	1 1/4	8673	2 1/8	8687	1 1/2
8669	1 1/2	....	...	8689	1 3/4

No. BR-12, Complete in Wooden Box.
Approximate Weight, 42 Lb.

Sockets for No. 2-BR Ratchet

Nominal Opening Size Across Flats Inches	SOCKET NO.		Approx. Weight Lb.
	Hexagon	Square	
1	8661	8681	2.6
1 1/16	8662	8682	2.6
1 1/8	8663	8683	2.6
1 1/4	8664	8684	2.6
1 1/2	8665	8685	2.6
1 3/8	8666	8686	2.8
1 7/8	8667	8687	2.8
1 1/2	8668	8688	2.9
1 5/8	8669	8689	3.3
1 3/4	8670	8690	3.3
1 7/8	8671	8691	3.5
2	8672	8692	4.0
2 1/16	8673	....	4.0

Sockets for No. 3-BR Ratchet

Nominal Opening Size Across Flats Inches	SOCKET NO.		Approx. Weight Lb.
	Hexagon	Square	
1 1/8	8721	8701	3.3
1 13/16	8722	8702	3.3
2	8723	8703	4.0
2 1/16	8724	8704	4.0
2 1/4	8725	....	4.0
2 3/8	8726	8705	6.3
2 1/2	8727	8706	6.7
2 3/4	8728	8707	7.2
2 15/16	8729	8708	8.0
3	8730	8709	9.0
3 1/8	8731	8710	9.0



ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

3/8"

For Power Wrenches Used in Production and Maintenance

ARMSTRONG ARMALLOY Power Drive Sockets are made from a selected grade of alloy steel, carefully heat treated; accurately machined to give proper fit and safe dependable service. Adaptable to most socket locking methods used on the various makes of power wrenches and can also be used on ARMSTRONG ARMALLOY Hand Socket Drive Parts where sockets of extra strength are needed and when corresponding drive sizes are available.



Hexagon
6-Point Opening

"2" SERIES—3/8" SQUARE DRIVE



Extra Deep,
Hexagon
6-Point Opening

Nominal Opening Inches	Single Hexagon Openings							
	Finish—Rust Resistant							
	Standard Length				Extra Deep Length			
	No.	Nominal Dimensions		Weight Each, Lbs.	No.	Nominal Dimensions		Weight Each, Lbs.
		Length Overall, Inches	Depth Opening, Inches			Length Overall, Inches	Depth Opening, Inches	
5/16	A2-610	7/8	1/4	.05	12-610	1 1/2	1/4	.09
3/8	A2-612	1 1/16	5/16	.05	12-612	1 1/2	5/16	.09
7/16	A2-614	1 5/16	9/32	.05	12-614	1 1/2	9/32	.09
1/2	A2-616	1 9/16	21/64	.04	12-616	1 1/2	21/64	.09
9/16	A2-618	1	13/32	.06	12-618	1 1/2	13/32	.11
5/8	A2-620	1 1/8	29/64	.09	12-620	1 1/2	29/64	.13
1 1/16	A2-622	1 1/8	29/64	.11	12-622	1 1/2	29/64	.16
3/4	A2-624	1 3/16	9/16	.13	12-624	1 1/2	9/16	.19

"2" SERIES ACCESSORIES



Extension

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
2-103A	3	3/8	3/8	.09
2-106A	6	3/8	3/8	.35

ADAPTERS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
2-4A	1 3/8	1/2	3/8	.14



Adapter

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



1/2"

ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

For Power Wrenches Used in Production and Maintenance

"4" SERIES—1/2" SQUARE DRIVE



Standard Length
Single Hexagon Openings
Finish—Rust Resistant



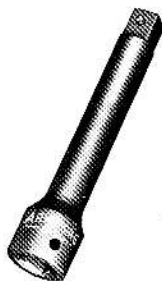
Extra Deep Length
Single Hexagon Openings
Finish—Rust Resistant



Standard Length
Double Square (8-Point) Opening
Finish—Rust Resistant

Nominal Opening Inches	Single Hexagon Openings								Double Square (8-Point) Openings For Square Nuts			
	Standard Length				Extra Deep Length				Standard Length			
	NOMINAL DIMENSIONS			Approx. Weight Lb.	NOMINAL DIMENSIONS			Approx. Weight Lb.	NOMINAL DIMENSIONS			Approx. Weight Lb.
	No.	Length Overall, In.	Depth Opening, In.		No.	Length Overall, In.	Depth Opening, In.		No.	Length Overall, In.	Depth Opening, In.	
3/8	A4-612	1 1/2	5/16	.14	14-612	3 1/4	5/16	.37	4-812	1 1/2	5/16	.14
7/16	A4-614	1 1/2	9/32	.17	14-614	3 1/4	9/32	.37	4-814	1 1/2	7/32	.17
1/2	A4-616	1 1/2	21/64	.16	14-616	3 1/4	21/64	.33	4-816	1 1/2	1/4	.20
9/16	A4-618	1 1/2	13/32	.15	14-618	3 1/4	13/32	.30	4-818	1 1/2	5/16	.25
19/32	A4-619	1 1/2	5/16	.16	.....	.....	.....	.....	.....	.....	.....	.....
5/8	A4-620	1 1/2	29/64	.19	14-620	3 1/4	29/64	.35	4-820	1 1/2	21/64	.26
11/16	A4-622	1 1/2	29/64	.23	14-622	3 1/4	29/64	.44	4-822	1 1/2	3/8	.33
3/4	A4-624	1 1/2	9/16	.28	14-624	3 1/4	9/16	.47	4-824	1 1/2	7/16	.38
13/16	A4-626	1 1/2	7/16	.36	14-626	3 1/4	39/64	.57	4-826	1 1/2	1/2	.43
7/8	A4-628	1 5/8	39/64	.40	14-628	3 1/2	39/64	.71	4-828	1 1/2	1/2	.50
15/16	A4-630	1 3/4	23/32	.47	14-630	3 1/2	23/32	.81	4-830	1 3/4	9/16	.67
1	A4-632	1 3/4	35/64	.62	14-632	3 1/2	35/64	.89	4-832	1 3/4	5/8	.78
1 1/16	A4-634	2	13/16	.67	.....	.....	.....	.....	.....	.....	.....	.....
1 1/8	A4-636	2	13/16	.70	.....	.....	.....	.....	.....	.....	.....	.....
1 3/16	A4-638	2	7/8	.74	.....	.....	.....	.....	.....	.....	.....	.....
1 1/4	A4-640	2	29/32	.72	.....	.....	.....	.....	.....	.....	.....	.....

"4" SERIES ACCESSORIES



Extension

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
4-105A	5	1/2	1/2	.44
4-110A	10	1/2	1/2	.81

Set No. A4-66

BASIC SET OF POWER DRIVE SOCKETS



Standard Length
Single Hexagon Openings

Contents

Six most commonly used size openings, 1/2" Square Drive in sturdy metal carrying tray, No. CT-9, with handle. Approx. weight 1.7 lbs.

No.	Nom. Opening Inches
A4-616	1/2
A4-618	9/16
A4-620	5/8
A4-622	11/16
A4-624	3/4
A4-626	13/16

UNIVERSAL JOINT

Male Square has Spring Plunger

No.	Approx. Wt., Lb.
4-140	.40



Universal Joint

ADAPTERS

Male Squares have Spring Plungers

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Wt., Lb.
4-2B	1 1/2	1/2	3/8	.13
4-5B	1 11/16	1/2	5/8	.15
4-6B	1 3/4	1/2	*3/4	.16

*Has thru pin hole.



Adapter

HEXAGON—SQUARE SHANKS

No.	Length Inches	Square Male Inches	Hex Male Inches	Approx. Weight Lb.
4-33A	2 3/4	1/2	7/16	.19
4-35A	5	1/2	7/16	.73
*4-53A	3	1/2	5/8	.25
*4-55A	5	1/2	5/8	.52

*This item will be discontinued when present stocks are depleted.



Hexagon Square



ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

5/8"

For Power Wrenches Used in Production and Maintenance



Standard Length
Single Hexagon Openings

"5" SERIES—5/8" SQUARE DRIVE



Extra Deep Length
Single Hexagon Openings

Single Hexagon Openings								
Finish—Rust Resistant								
Nominal Opening Inches	Standard Length				Extra Deep Length			
	No.	NOMINAL DIMENSIONS		Approx. Weight Lb.	No.	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall Inches	Depth Opening Inches			Length Overall Inches	Depth Opening Inches	
1/2	A5-616	1 1/2	21/64	.31				
9/16	A5-618	1 1/2	15/32	.26	15-618	3 1/4	3/16	.56
5/8	A5-620	1 1/2	29/64	.26	15-620	3 1/4	15/32	.69
11/16	A5-622	1 1/2	29/64	.26	15-622	3 1/4	33/64	.75
3/4	A5-624	1 1/2	9/16	.25	15-624	3 1/4	9/16	.75
13/16	A5-626	1 5/8	39/64	.25	15-626	3 1/4	39/64	.77
7/8	A5-628	1 5/8	39/64	.32	15-628	3 1/4	21/32	.78
15/16	A5-630	2	25/32	.44	15-630	3 1/2	49/64	.94
1	A5-632	2	35/64	.51	15-632	3 1/2	3/4	1.06
11/16	A5-634	2	13/16	.58	15-634	3 1/2	51/64	1.06
11/8	A5-636	2	13/16	.65	15-636	3 1/2	27/32	1.26
13/16					15-638	3 1/2	7/8	1.36
11/4	A5-640	2	29/32	.85	15-640	3 1/2	13/16	1.50
15/16	A5-642	2	49/64	.86				
13/8	A5-644	2 1/8	49/64	.91				
17/16	A5-646	2 1/4	49/64	1.				
1 1/2	A5-648	2 3/8	7/8	1.2				

"5" SERIES ACCESSORIES UNIVERSAL JOINT

Male Square has Spring Plunger



No.	Approx. Wt. Lb.
5-140	.60

ADAPTERS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
5-4A	1 7/8	5/8	*1 1/2	.35
5-6	2	5/8	†3/4	.43

*Has Spring Plunger.
†Has thru pin hole.

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
5-106A	6	5/8	5/8	.98
5-110A	10	5/8	5/8	1.50




3/4"

ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

For Power Wrenches Used in Production and Maintenance

"6" SERIES—3/4" SQUARE DRIVE

**Standard Length
Single Hexagon Openings**

Finish—Rust Resistant


**Standard Length
Double Square (8-Point) Openings**

Finish—Rust Resistant


**Extra Deep Length
Single Hexagon Openings**

Finish—Rust Resistant

Nominal Opening Inches	No.	Length Overall Inches	Depth Opening Inches	Approx. Weight Lb.	No.	Length Overall Inches	Depth Opening Inches	Approx. Weight Lb.	No.	Length Overall Inches	Depth Opening Inches	Approx. Weight Lb.
1/2	6-616	1 3/4	1 3/8	.45								
9/16	6-618	1 3/4	1 1/2	.50								
5/8	6-620	1 3/4	1 1/4	.62	6-820	1 5/8	2 1/4	.56	16-620	3 1/4	2 3/4	1.1
11/16	6-622	1 3/4	1 1/4	.62					16-622	3 1/4	2 3/4	1.3
3/4	6-624	1 3/4	1 1/4	.62	6-824	1 3/4	1 1/4	.75	16-624	3 1/4	2 3/4	1.3
25/32	6-625	1 3/4	1 1/4	.70								
13/16	6-626	1 7/8	1 1/4	.70	6-826	1 7/8	1 1/4	.75	16-626	3 1/4	2 3/4	1.3
7/8	6-628	1 7/8	1 1/4	.70	6-828	1 7/8	1 1/4	.88	16-628	3 1/2	2 3/4	1.4
15/16	6-630	2	1 3/4	.70	6-830	1 7/8	1 1/4	.88	16-630	3 1/2	2 3/4	1.4
1	6-632	2	1 3/4	.70	6-832	2	1 3/4	.94	16-632	3 1/2	2 3/4	1.3
1 1/16	6-634	2	1 3/4	.81	6-834	2	1 3/4	.94	16-634	3 1/2	2 3/4	1.3
1 1/8	6-636	2 1/8	1 3/4	.90	6-836	2 1/8	1 3/4	1.00	16-636	3 1/2	2 3/4	1.4
1 1/4	6-638	2 1/8	1 3/4	1.00	6-838	2 1/8	1 3/4	1.37	16-638	3 1/2	2 3/4	1.5
1 1/2	6-640	2 1/8	1 3/4	1.00	6-840	2 1/8	1 3/4	1.50	16-640	3 1/2	2 3/4	1.9
1 5/8	6-642	2 1/4	1 3/4	1.13	6-842	2 1/4	1 3/4	1.80	16-642	3 1/2	2 3/4	1.9
1 3/4	6-644	2 1/4	1 3/4	1.19								
1 7/8	6-646	2 1/4	1 3/4	1.30	6-846	2 1/4	1 3/4	2.00	16-646	3 1/2	2 3/4	2.3
2	*6-648	2 3/8	1 3/4	1.44					*16-648	3 1/2	2 3/4	2.3
2 1/8	6-652	2 3/8	1 3/4	1.56					16-652	3 1/2	2 3/4	2.5
2 1/4	6-654	2 3/8	1 3/4	1.56								

*Can be used for servicing Standard Budd Wheels.

RETAINER PINS AND "O" RINGS FOR "6" AND "7" SERIES



Pins



"O" Rings

"O" Rings are made of synthetic rubber for resistance to oil and grease. Retainer Pins are made of selected steel—oil finished. Retainer Pins and "O" Rings are packaged separately, 25 of each to a box.

Sq. Drive Size, In.	Retainer Pin	Pin, Approx. Weight, Lb.	"O" Type Rings	Diam. Inches	Approx. Wt. Lb. Ring
3/4	Type C, 1 1/2" Long	.01	A-1	1 1/16	.01
1	Type D, 1 7/8" Long	.01	B-1	1 3/4	.02



Universal Joint



Adapter



Extension

"6" SERIES ACCESSORIES

UNIVERSAL JOINT

Male Square has Thru Pin Hole

No.	Approx. Wt. Lb.
6-140	.80

ADAPTERS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
6-4	2 1/16	3/4	1/2	.60
6-5	2 1/8	3/4	5/8	.68
*6-7	2 1/2	3/4	1	.90

*Has thru pin hole.

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
6-107	7	3/4	3/4	1.50
6-110	10	3/4	3/4	2.44
6-113	13	3/4	3/4	3.00

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY POWER DRIVE SOCKETS AND ATTACHMENTS

For Power Wrenches Used in Production and Maintenance

"7" SERIES—1" SQUARE DRIVE



6-Point Opening

Standard Length
Single Hexagon Openings

Finish—Rust Resistant

Standard Length
Square (4-Point) and Double
Square (8-Point) Openings

Finish—Rust Resistant



8-Point Opening

Nominal Opening Inches	No.	NOMINAL DIMENSIONS		Approx. Weight Lb.	No.	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall Inches	Depth Opening Inches			Length Overall Inches	Depth Opening Inches	
3/4	7-624	2 1/16	9/16	.75	*7-424	2 1/8	7/16	1.37
13/16	7-626	2 1/8	1/2	1.00	*7-426	2 1/8	1/2	1.37
7/8	7-628	2 3/8	33/64	1.00	*7-428	2 1/4	1/2	1.50
15/16	7-630	2 3/8	23/32	1.00	*7-430	2 1/4	9/16	1.60
1	7-632	2 1/4	85/64	1.25	*7-432	2 3/16	35/64	1.75
1 1/16	7-634	2 1/4	13/16	1.25	*7-434	2 3/16	5/8	1.75
1 1/8	7-636	2 3/8	13/16	1.25	*7-436	2 1/2	21/32	2.00
1 3/16	7-638	2 7/16	1/8	1.25	7-838	2 1/2	21/32	2.00
1 1/4	7-640	2 7/16	29/32	1.37	7-840	2 1/2	3/4	2.00
1 5/16	7-642	2 9/16	49/64	1.37	7-842	2 1/2	49/64	2.40
1 3/8	7-644	2 9/16	49/64	1.37	7-844	2 1/2	49/64	2.37
1 7/16	7-646	2 9/16	49/64	1.37	7-846	2 1/2	49/64	2.37
1 1/2	7-648	2 5/8	7/8	1.75	7-848	2 5/8	7/8	2.62
1 9/16	7-650	2 5/8	7/8	1.75	7-850	2 5/8	7/8	3.00
1 5/8	7-652	2 5/8	7/8	1.75	7-852	2 5/8	7/8	3.00
1 11/16	7-654	2 11/16	1	1.87	7-854	2 13/16	1	3.25
1 3/4	7-656	2 11/16	1	1.87	7-856	2 13/16	1	3.50
1 13/16	7-658	2 3/4	1	2.50	7-858	2 13/16	1	3.50
1 7/8	7-660	2 7/8	1 3/32	2.50	7-860	3	1 3/32	3.75
1 15/16	7-662	2 7/8	1 3/32	3.00	7-862	3 1/16	1 3/32	4.30
2	7-664	2 13/16	1 3/32	3.25	7-864	3 1/16	1 3/32	4.50
2 1/16	7-666	3 1/16	1 13/64	3.25	7-866	3 1/4	1 13/64	4.80
2 1/8	7-668	3 1/8	1 13/64	3.25	7-868	3 1/4	1 13/64	5.00
2 3/16	7-670	3 1/8	1 13/64	3.75	7-870	3 1/4	1 13/64	5.15
2 1/4	7-672	3 1/4	1 5/16	3.75	7-872	3 7/16	1 5/16	5.68
2 5/16	7-674	3 3/16	1 5/16	4.00	7-874	3 7/16	1 5/16	5.75
2 3/8	7-676	3 3/16	1 5/16	4.00	7-876	3 1/2	1 5/16	6.50
2 7/16	7-678	3 3/2	1 25/64	4.25				
2 1/2	7-680	3 1/2	1 25/64	4.75				
2 9/16	7-682	3 1/2	1 25/64	5.25				
2 5/8	7-684	3 11/16	1 1/2	5.50				
2 11/16	7-686	3 11/16	1 1/2	5.40				
2 3/4	7-688	3 11/16	1 1/2	6.00	7-888	3 7/8	1 1/2	7.25
2 13/16	7-690	3 7/8	1 39/64	6.25				
2 7/8	7-692	3 15/16	1 39/64	5.75				
2 15/16	7-694	3 15/16	1 39/64	6.50				
3	7-696	4 1/16	1 23/32	6.75				
3 1/8	7-6100	4 1/8	1 23/32	7.50				
3 1/4	7-6104	4 1/8	1 23/32	7.50				
3 3/8	7-6108	4 1/2	1 59/64	8.0				
3 1/2	7-6112	4 1/2	1 59/64	8.8				
3 5/8	7-6116	4 1/2	1 59/64	8.8				

*These sockets have single square (4-point) openings.

†This item will be discontinued when present stock is depleted.



Adapter

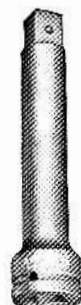
"7" SERIES ACCESSORIES

ADAPTERS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
7-6	3	1	3/4	1.75

EXTENSIONS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
7-107	7	1	1	3.5



Extension

For Retainer Pins and "O" Rings to fit above Sockets, Adapters and Extensions, see page 102.

See chart, page 74, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG SCREW DRIVERS AND SCREW DRIVER SETS

ARMSTRONG Screw Drivers have amber plastic handles designed to provide comfortable gripping surfaces. Chrome plated alloy steel blades are tempered for proper degree of hardness, tips are precision ground.

SQUARE BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
*3050	11 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	.05
3052	4	$\frac{5}{16}$	$\frac{3}{16}$	.14
3054	4	1 $\frac{1}{4}$	1 $\frac{1}{4}$	.20
3056	6	1 $\frac{1}{4}$	1 $\frac{1}{4}$	.23
3058	4	$\frac{5}{16}$	$\frac{3}{16}$	.30
3060	6	$\frac{5}{16}$	$\frac{3}{16}$	.35
3062	8	$\frac{5}{16}$	$\frac{3}{16}$	.41
3064	8	$\frac{3}{8}$	$\frac{3}{8}$	.52
3066	12	$\frac{3}{8}$	$\frac{3}{8}$	.72

*Denotes stubby

REGULAR ROUND BLADE



No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
3104	4	1 $\frac{1}{4}$	1 $\frac{1}{4}$	.19
3106	6	$\frac{5}{16}$	$\frac{5}{16}$	.28
3108	8	$\frac{3}{8}$	$\frac{3}{8}$	.48

ROUND ELECTRICIANS' (CABINET) STYLE BLADE



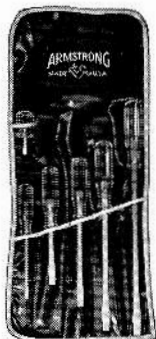
No.	Blade Length Inches	Stock Size Inches	Tip Width Inches	Weight Each Lbs.
3152	2	1 $\frac{1}{8}$	1 $\frac{1}{8}$	.06
3154	3	$\frac{5}{16}$	$\frac{3}{16}$	.13
3156	6	$\frac{3}{16}$	$\frac{3}{16}$	.14

PHILLIPS



No.	Blade Length Inches	Stock Size Inches	Phillips No.	Weight Each Lbs.
*3252	1 $\frac{5}{16}$	1 $\frac{1}{4}$	2	.09
3254	3	$\frac{5}{16}$	1	.13
3256	4	1 $\frac{1}{4}$	2	.19
3258	6	$\frac{5}{16}$	3	.28
3260	8	$\frac{3}{8}$	4	.48

*Denotes stubby



SET NO. 3001
In Plastic Roll

Contains 1 each Nos. 3050, 3052, 3054, 3060, 3064 and 3066 Square Shank Screwdrivers in Plastic Roll No. R-31. Approx. Wt., 2.32 lbs.

SCREW DRIVER SETS



SET NO. 3002
In Cardboard Box

Contains 1 each Nos. 3050, 3054, 3060, 3064 and 3066 Square Shank Screwdrivers. Approx. Wt., 2.07 lbs.

See page 91 for descriptions of all plastic rolls



SET NO. 3003
In Plastic Roll

Contains 1 each Nos. 3252, 3254, 3256, 3258 and 3260 Phillips Screwdrivers in Plastic Roll No. R-33. Approx. Wt., 1.4 lbs.



ARMSTRONG CHISELS AND PUNCHES

ARMSTRONG Punches and Chisels are made of alloy steel. Accurately heat treated and finished in cadmium plate with faces and heads polished.

Pin Punches



No.	Point Diameter Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3352	$\frac{3}{32}$	$\frac{5}{16}$	$4\frac{1}{2}$	.08
3354	$\frac{1}{8}$	$\frac{5}{16}$	$4\frac{1}{2}$	.08
3356	$\frac{5}{32}$	$\frac{3}{8}$	$4\frac{1}{2}$	.10
3358	$\frac{3}{16}$	$\frac{3}{8}$	5	.16
3360	$\frac{1}{4}$	$\frac{7}{16}$	6	.21
3362	$\frac{5}{16}$	$\frac{7}{16}$	6	.25

Solid Punches



No.	Point Diameter Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3382	$\frac{3}{32}$	$\frac{5}{16}$	4	.08
3384	$\frac{1}{8}$	$\frac{3}{8}$	5	.13
3386	$\frac{5}{32}$	$\frac{3}{8}$	5	.15
3388	$\frac{3}{16}$	$\frac{1}{2}$	6	.31
3390	$\frac{1}{4}$	$\frac{1}{2}$	6	.31

Long Taper Punches



No.	Point Diameter Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3372	$\frac{5}{32}$	$\frac{3}{8}$	9	.23
3374	$\frac{3}{16}$	$\frac{1}{2}$	9	.46
3376	$\frac{1}{4}$	$\frac{5}{8}$	9	.71

Center Punches



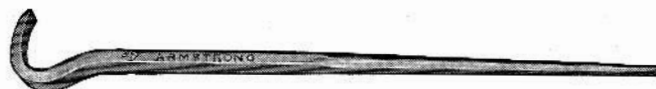
No.	Point Diameter Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3396	..	$\frac{3}{8}$	$4\frac{1}{2}$	.29
3398	..	$\frac{1}{2}$	$5\frac{1}{2}$	.38

Cold Chisels



No.	Width of Cut Inches	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3402	$\frac{1}{4}$	$\frac{1}{4}$	$4\frac{1}{2}$	.08
3404	$\frac{5}{16}$	$\frac{3}{16}$	5	.13
3406	$\frac{3}{8}$	$\frac{5}{16}$	5	.13
3408	$\frac{1}{2}$	$\frac{7}{16}$	$5\frac{1}{2}$	.25
3410	$\frac{5}{8}$	$\frac{1}{2}$	6	.33
3412	$\frac{3}{4}$	$\frac{5}{8}$	7	.60
3414	$\frac{7}{8}$	$\frac{3}{4}$	$7\frac{1}{2}$	.92
3416	1	$\frac{7}{8}$	8	1.33

Rolling Head Pry and Line-up Bar



No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3452	$\frac{5}{8}$	$16\frac{1}{2}$	1.25

Rivet Buster



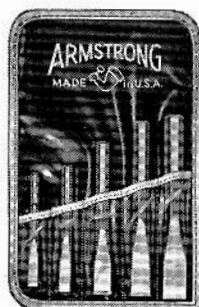
ARMSTRONG Rivet Busters are specifically designed for cutting off hardened rivet heads. Much simpler than using a chisel.

No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3420	$\frac{5}{8}$	9	.94

Pinch Bars

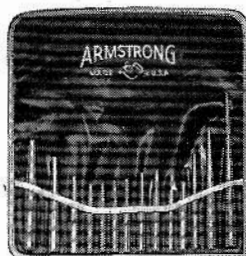


No.	Stock Size, In.	Length, In.	Wt. Ea. Lbs.
3430	$\frac{1}{2}$	16	.81



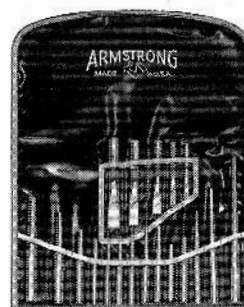
Set No. 3442

One each Nos. 3406, 3408, 3410, 3412 and 3414 Cold Chisels in Plastic Roll No. R-35. Approx. Wt. 2.50 lbs.



Set No. 3440

One each of Punches, Nos. 3354, 3356, 3358, 3360, 3362, 3384, 3386, 3388, 3390, 3372, 3374, 3376, 3396 and 3398 in Plastic Roll No. R-37. Approx. Wt. 4.00 lbs.

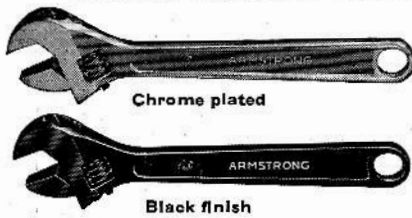


Set No. 3444

Contents one each of Punches Nos. 3354, 3356, 3358, 3360, 3362, 3384, 3386, 3388, 3390, 3372, 3374, 3376, 3396 and 3398 plus 1 each Chisels Nos. 3406, 3408, 3410, 3412 and 3414 in Plastic Roll No. R-39. Approx. Wt. 6.50 lbs.



ARMSTRONG ARMALLOY ADJUSTABLE WRENCHES



Chrome plated

Black finish

ARMALLOY Adjustable Wrenches are light weight with thin tapered jaws for use in inaccessible places.

ARMALLOY Adjustable Wrenches are drop forged from a selected grade of alloy steel.

All parts are accurately machined, carefully heat treated. Available in chrome plate finish with handle satin finish and head highly polished, or in economical black finish.

Selected Alloy Steel

Chrome Finish No.	Black Finish No.	Size Inches	THICKNESS HEAD		Approx. Wt. Lb.
			Tip of Jaws, Inches	Extreme, Inches	
4	4B	4	1/8	5/16	.09
6	6B	6	3/16	3/8	.25
8	8B	8	15/64	15/32	.50
10	10B	10	9/32	9/16	.81
12	12B	12	11/32	11/16	1.44
15	15B	15	17/32	61/64	3.00
18	18B	18	41/64	15/32	5.00
24	....	24	7/8	13/8	10.00

ARMSTRONG ARMALLOY PLIERS—Drop Forged Steel

ARMSTRONG Pliers are drop forged from selected grade alloy steel. They are carefully heat-treated to ensure strength and dependability. All ARMSTRONG Pliers are chrome plated.



Combination Slip-Joint Pliers

Combination pliers are drop forged and accurately machined. Bolt and nut turned from solid bar of steel and case hardened. Chrome plate finish.

No.	Length Inches	Capacity Inches	Weight Lbs.
5	5	3/4	.25
6	6	1	.44
8	8	1 1/4	.63
10	10	1 1/2	1.13



Rib Joint Pliers

No. 1520-A Rib-joint pliers, drop forged of alloy steel with jaws that will grip as small as 1/4" at the back (will close at the front). Five precision machined grooves, maximum parallel jaw opening 1 1/2". Knurled handles, chrome plate finish.

No.	Length Inches	Weight Lb.
1520-A	10	.69

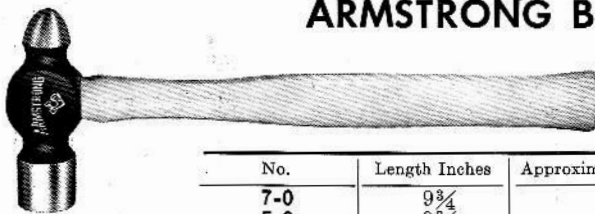


Armstrong Rib-Joint Ignition Pliers

No. 1519-A Rib-joint Ignition Pliers are ideal for delicate jobs such as wiring, switchboard, radio and panel work. Rib-joint construction holds jaws parallel at the most important openings. Faces are polished.

No.	Length Inches	Weight Lb.
1519-A	5	.10

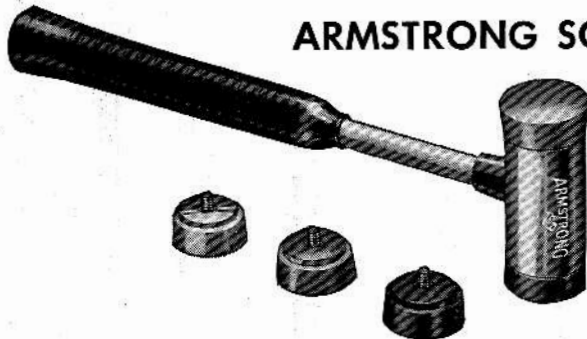
ARMSTRONG BALL PEIN HAMMERS



ARMSTRONG Ball Pein Hammers are drop forged from selected steel, carefully heat treated for extra strength and durability. Handles are made of second growth white hickory, are clear lacquered and permanently wedged into the head.

No.	Length Inches	Approximate Weight, Lb.	No.	Length Inches	Approximate Weight, Lb.
7-0	9 3/4	.12	0	14	1.00
5-0	9 3/4	.25	2	14 1/2	1.50
3-0	11 1/2	.50	4	15 1/2	2.00
2-0	13 1/2	.75	6	16	2.50

ARMSTRONG SOFT FACED HAMMERS



ARMSTRONG Soft Faced Hammers are designed to hold interchangeable tips of varying degrees of hardness. The tips are color coded to indicate hardness and are resistant to oil, gasoline and common industrial acids. The soft faces prevent marring of finished surfaces and will not gash, mushroom or chip.

Hammer Bodies Only:

No.	HEAD		Handle Length Inches	Weight Each, Lbs.
	Diameter Inches	Length Inches		
120	1 1/4	15 3/8	12 1/2	.56
153	1 3/8	2 1/16	12 1/2	.94
205	1 3/4	3 3/8	12 1/2	1.75

Tips Only:

For 120 Handle		For 153 Handle		For 205 Handle		Tip	
No.	Wt. ea.	No.	Wt. ea.	No.	Wt. ea.	Hardness	Color
12-M	1 1/2 oz.	15-M	3/4 oz.	20-M	2 oz.	Medium	Light Gray
12-T	1 1/2 oz.	15-T	3/4 oz.	20-T	2 oz.	Tough	Dark Gray
12-N	1 1/2 oz.	15-N	3/4 oz.	20-N	2 oz.	Medium Hard	Cream

ARMSTRONG PIPE TOOLS

THE TRADE MARK  OF QUALITY

Because they have always been sold to *professional* tool users, ARMSTRONG Pipe Tools have the built-in quality demanded by such men—men who know tools because they make their living with tools.

Drop forged and specially hardened parts are used wherever additional strength or lighter weight is a desirable feature.

Meticulous inspection and testing ensure top quality in all ARMSTRONG PIPE TOOLS. And remember, as "Pete," the Plumber's Pal says . . .

THREAD DESCRIPTIONS

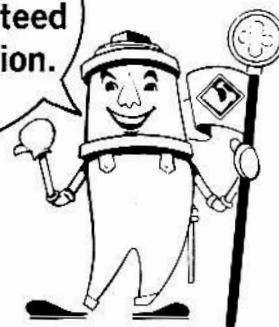
Four different thread descriptions used frequently in this catalog are: NPT, NPSM, NC and NF

NPT dies are U.S. standard pipe dies, that cut a tapered thread for making up water-tight joints in pipe systems designed to carry water and other fluids under pressure.

NPT dies are also used for threading electrical conduit, and all orders specifying "conduit dies" will be filled with NPT dies.

NPSM (American National Straight Threads for Mechanical Joints) dies are the same as NPT dies, except that the thread is not tapered, thus will not create a water-tight joint. These dies are preferred for certain types of electrical work, and will be furnished against orders specifying "NPSM" or "straight" dies.

**All ARMSTRONG
Tools are guaranteed
to your satisfaction.**



"Pete", the Plumber's Pal

The following table lists the threads-per-inch cut by both NPT and NPSM dies.

Pipe (or Conduit) Size, Inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Threads-per-inch NPT and NPSM	27	18	18	14	14	11 1/2	11 1/2	11 1/2	11 1/2	8	8	8	8	8	8	8

NC (National Coarse) and NF (National Fine) dies are for threading rod and bolts.

Below are listed the threads-per-inch cut by NC and NF dies.

Bolt Diameter, Inches	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	1 1/2	1 3/4	1 1/2	1 3/4	1 1/2	2
National Coarse (N.C.) Threads per Inch	20	18	16	14	13	12	11	10	9	8	7	7	6	6	5 1/2	5	4 1/2
National Fine (N.F.) Threads per Inch	28	24	24	20	20	18	18	16	14	14	12	12	12	12	...	...	...



ARMSTRONG DROP HEAD RATCHET THREADERS

Especially well suited for threading in close quarters. Choose the set that best fills your needs from this broad selection of drop head ratchet threading tools. Each of the seven series features rugged, yet light weight ratchets. Die heads and collars are finished in baked-on red enamel. Handles are made of galvanized pipe. Die heads slip smoothly into collars, won't fall out during use, but may be re-

leased by a pull of the ratchet pawl. The ratchet mechanism works easily and is instantly reversible.

Dies are machined from alloy steel, precision ground, and carefully heat treated to assure easy thread cutting and long life. Sets are available with NPT, NPSM, NC, and NF dies, as listed in tables. See page 107 for definitions of NPT, NPSM, NC and NF.

For best results, and to increase die life, always use ARMSTRONG ARMOIL thread cutting oil when threading pipe, conduit and bolts.

00 SERIES

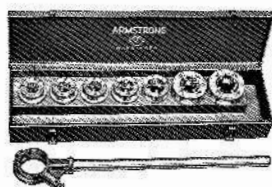
Pipe-Conduit



This small, streamlined ratchet is especially handy in close quarters. Collar is drop forged for extra strength, less weight. Available with NPT ($\frac{1}{8}$ " through $\frac{3}{4}$ ") or NPSM ($\frac{1}{2}$ " and $\frac{3}{4}$ ") dies. Sets available, as listed in tables, in cardboard box or in Steel Case No. C-41 (See page 91 for dimensions of C-41 Case).

11 SERIES

Pipe-Conduit



11 Series is our most popular model. Available with NPT ($\frac{1}{8}$ " through $1\frac{1}{4}$ ") or NPSM ($\frac{1}{2}$ " through $1\frac{1}{4}$ ") dies. Sets available, as listed in tables, in cardboard box or in Steel Case No. C-43. (See page 91 for dimensions of C-43 Case).

Sets with NPSM Dies for Conduit

Series No.	Set No.		Capacity, Conduit, Size, In.	Approx. Wt., Lb.	
	In Card-board Box	In Steel Case		In Card-board Box	In Steel Case
00	00-C-2	00-C-2C	$\frac{1}{2}, \frac{3}{4}$	5.50	9.63
11	11-C-3	11-C-3C	$\frac{1}{2}, \frac{3}{4}, 1$	10.00	17.30
	11-C-4	11-C-4C	$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}$	13.00	20.13
12	12-C-4	—	$1, 1\frac{1}{4}, 1\frac{1}{2}, 2$	18.75	—
	12-C-5	—	$\frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}, 2$	21.50	—
	12-C-6	—	$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}, 2$	24.50	—

For extra dies, dieheads, ratchets, see page 110.

Sets with NC and NF Bolt Dies

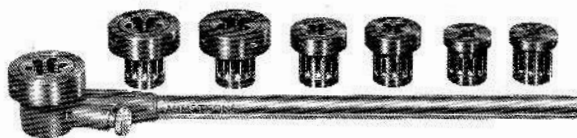
Orders that do not include set number or specification will be filled with NC dies.

Series No.	Set No.		For Threading Bolts, Dia., Inches	Approx. Wt., Lb.
	N.C. Dies	N.F. Dies		
00	00-7BC	00-7BF	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}, \frac{7}{8}, 1$	13.5
	00-10BC	00-10BF	$\frac{1}{4}, \frac{5}{16}, \frac{3}{8}, \frac{1}{2}, \frac{9}{16}, \frac{5}{8}, \frac{3}{4}, \frac{7}{8}, 1$	19.5

For extra dies, dieheads, ratchets, see page 110.

00 SERIES

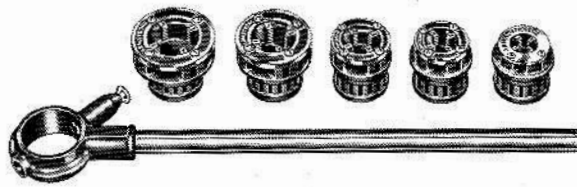
Bolt



Dies are made of special high carbon steel, precision cut; may be adjusted to cut oversize or undersize. Reversible for cutting close to bolt shoulder. Sets are furnished in a cardboard box and include 00-R ratchet handle and die heads with NC or NF dies as listed.

12 SERIES

Pipe-Conduit



12 Series is our most popular 2" capacity drop head threader, with a range of $\frac{1}{2}$ " to 2" in both NPT and NPSM dies. Sets available, as listed in tables, in cardboard box. By using No. 292-A adapter and 291 Series die heads, listed on page 109, this threader can be adapted down to $\frac{1}{8}$ " pipe.

Sets with NPT Dies for Pipe and Conduit

Series No.	Set No.		Capacity, Pipe & Conduit, Size, Inches	Approx. Wt., Lb.	
	In Card-board Box	In Steel Case		In Card-board Box	In Steel Case
00	00-2	00-2C	$\frac{1}{2}, \frac{3}{4}$	5.50	9.63
	00-3	00-3C	$\frac{3}{8}, \frac{1}{2}, \frac{3}{4}$	7.00	11.13
	00-4	00-4C	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}$	8.75	12.88
	00-5	00-5C	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}$	9.75	13.88
11	11-3C	11-3C	$\frac{1}{2}, \frac{3}{4}, 1$	10.00	17.30
	11-4	11-4C	$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}$	13.00	20.13
	11-4A	11-4AC	$\frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1$	12.00	19.13
	11-5	11-5C	$\frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}$	14.00	21.13
	11-5A	11-5AC	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1$	14.00	21.13
	11-6	11-6C	$\frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}$	14.50	21.18
	11-6A	11-6AC	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1$	15.50	21.18
	11-7	11-7C	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}$	18.00	25.13
12	12-4	—	$1, 1\frac{1}{4}, 1\frac{1}{2}, 2$	18.75	—
	12-5	—	$\frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}, 2$	21.50	—
	12-6	—	$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}, 2$	24.50	—

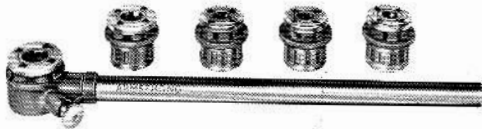
For extra dies, dieheads, ratchets, see page 110.



ARMSTRONG DROP HEAD RATCHET THREADERS

For best results, and to increase die life, always use **ARMSTRONG ARMOIL** thread cutting oil when threading pipe, conduit and bolts.

291 SERIES Pipe—Conduit



291 Series Threading Sets feature reversible dies for threading close-up to walls and obstructions. Available with NPT dies ($\frac{1}{8}$ " through $1\frac{1}{4}$ ") for threading pipe and conduit. Sets are furnished in cardboard box and include ratchet handle and die heads with dies as listed.

292 SERIES Pipe—Conduit



292 Series features reversible dies for threading close-up to walls and obstructions. Available with NPT dies ($1\frac{1}{4}$ " through 2") for threading pipe or conduit. Sets are furnished in cardboard box and include ratchet handle and die heads as listed.

Sets With NPT Dies for Pipe and Conduit

Series No.	Set No.	Capacity, Pipe & Conduit, Size, In.	Approx. Wt. Lb.
291	291-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	9.25
	291-4	$\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	11.25
	291-5	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	12.50
	291-7	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	15.50
292	292-3	$1\frac{1}{4}$, $1\frac{1}{2}$, 2	18.25

For extra dies, dieheads, ratchets, see page 110.

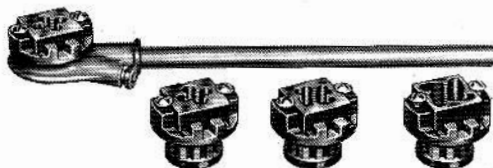


291-A ADAPTER

291-A Adapter fits into 292-R and 12-R ratchet collars and accommodates all series 291 die heads, $\frac{1}{8}$ " through $1\frac{1}{4}$ ", thus extending the range of the 291 and 12 series to $\frac{1}{8}$ " to 2".

OD SERIES

Pipe—Conduit



Sets With NPT Dies for Pipe and Conduit

Set No.	Capacity, Pipe & Conduit, Size, In.	Approx. Wt., Lb.
O-D-2	$\frac{1}{2}$, $\frac{3}{4}$	6.62
O-D-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	8.62
O-D-4	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	10.62
O-D-4A*	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	18.25
O-D-5	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	12.62
O-D-6	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	14.62

*Furnished in Steel Case No. C-45, described on page 91.
For extra dies, dieheads, ratchets, see page 110.

Ratchets are furnished with your selection of interchangeable heads for threading $\frac{1}{8}$ " to 1" pipe. Each head has an integral guide and carries a solid die. A simple pull of the ratchet pawl releases or secures the complete head assembly permitting rapid size changes. Dies furnished are standard 2" x 2" solid NPT dies (for pipe or conduit), as shown on page 114. Unlike segmental dies, they cannot come out of adjustment and can be quickly and easily removed and reversed for "close-up" threading, or replaced with a new die when necessary.

Thus the OD Series combines the conveniences of the drop head ratchet with the economy and simplicity of the solid die.

Sets are furnished in cardboard box and include ratchet handle and dieheads as listed.



ARMSTRONG DROP HEAD RATCHET THREADERS

GS SERIES

Pipe—Conduit

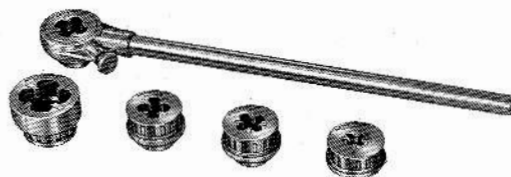
GS Series Threading Sets feature dies which are cast as an integral part of the die head, a cost reduction factor that makes this series most economical to buy.

The cost of the die heads is such that the complete head may be "thrown away" and replaced at less, or only slightly more, than the cost for sets of segmental dies for other drop head series of similar capacity. The time saved (by not having to disassemble the head, position the new dies, reassemble the head, and make additional die adjustments) provides an appreciable saving in costs.

Moreover, the GS Series combines this economy with the basic advantages of the drop head principle—a compact tool, with ratchet action for use in tight quarters, and instant change from one die size to another.

Available with NPT dies, $\frac{3}{8}$ " through $1\frac{1}{4}$ ". Sets are individually packed in cardboard boxes and include ratchet handle with die heads as listed.

For best results, and to increase die life, always use ARMSTRONG ARMOIL thread cutting oil when threading pipe, conduit and bolts



GS Series

Sets With NPT Dies for Pipe and Conduit

Set No.	Capacity, Pipe & Conduit, Size, In.	Approx. Wt., Lb.
GS-2	$\frac{1}{2}$, $\frac{3}{4}$	6.10
GS-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	8.00
GS-3A	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	8.00
GS-4	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	9.75
GS-5	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	12.40

For extra dies, dieheads, ratchets, see below.

DIES, DIE HEADS, RATCHETS

For All Seven Series, ARMSTRONG Drop Head Threaders

NPT Dies

For Pipe and Conduit, Size, In.	For Series No.*				
	00	11	12	291	292
$\frac{1}{8}$	D-004	D-004	—	D-914	—
$\frac{1}{4}$	D-008	D-008	—	D-918	—
$\frac{3}{8}$	D-0012	D-0012	—	D-9112	—
$\frac{1}{2}$	D-0016	D-0016	D-0016	D-9116	—
$\frac{3}{4}$	D-0024	D-0024	D-0024	D-9124	—
1	—	D-1132	D-1132	D-9132	—
$1\frac{1}{4}$	—	D-1140	D-1140	D-9140	D-9140
$1\frac{1}{2}$	—	—	D-1248	—	D-9248
2	—	—	D-1264	—	D-9264

*Solid dies for OD Series shown on page 114.

Bolt Dies and Die Heads

For Bolt, Dia., In.	NC		NF	
	Die Only	Diehead Complete	Die Only	Diehead Complete
$\frac{1}{4}$	D-008A	E-008A	D-008B	E-008B
$\frac{5}{16}$	D-0010A	E-0010A	D-0010B	E-0010B
$\frac{3}{8}$	D-0012A	E-0012A	D-0012B	E-0012B
$\frac{7}{16}$	D-0014A	E-0014A	D-0014B	E-0014B
$\frac{1}{2}$	D-0016A	E-0016A	D-0016B	E-0016B
$\frac{9}{16}$	D-0018A	E-0018A	D-0018B	E-0018B
$\frac{5}{8}$	D-0020A	E-0020A	D-0020B	E-0020B
$\frac{3}{4}$	D-0024A	E-0024A	D-0024B	E-0024B
$\frac{7}{8}$	D-0028A	E-0028A	D-0028B	E-0028B
1	D-0032A	E-0032A	D-0032B	E-0032B

NPT Die Heads

For Pipe and Conduit, Size, In.	For Series No.						
	00	11	12	291	292	OD	GS
$\frac{1}{8}$	E-004	E-114	—	E-914	—	E-OD4	—
$\frac{1}{4}$	E-008	E-118	—	E-918	—	E-OD8	—
$\frac{3}{8}$	E-0012	E-1112	—	E-9112	—	E-OD12	E-GS12
$\frac{1}{2}$	E-0016	E-1116	E-1216	E-9116	—	E-OD16	E-GS16
$\frac{3}{4}$	E-0024	E-1124	E-1224	E-9124	—	E-OD24	E-GS24
1	—	E-1132	E-1232	E-9132	—	E-OD32	E-GS32
$1\frac{1}{4}$	—	E-1140	E-1240	E-9140	E-9240	—	E-GS40
$1\frac{1}{2}$	—	—	E-1248	—	E-9248	—	—
2	—	—	E-1264	—	E-9264	—	—

Drop Head Ratchets

Series No.	Ratchet No.	Approx. Wt., Lb.
00	00-R	3.00
11	11-R	4.00
12	12-R	4.50
291	291-R	3.75
292	292-R	4.00
OD	OD-R	1.75
GS	GS-R	3.25

NPSM Dies

For Conduit, Size, In.	For Series No.			For Series No.		
	00	11	12	00	11	12
$\frac{1}{2}$	D-0016C	D-0016C	D-0016C	E-0016C	E-1116C	E-1216C
$\frac{3}{4}$	D-0024C	D-0024C	D-0024C	E-0024C	E-1124C	E-1224C
1	—	D-1132C	D-1132C	—	E-1132C	E-1232C
$1\frac{1}{4}$	—	D-1140C	D-1140C	—	E-1140C	E-1240C
$1\frac{1}{2}$	—	—	D-1248C	—	—	E-1248C
2	—	—	D-1264C	—	—	E-1264C

NPSM Die Heads

For definitions of NPT, NPSM, NC, NF, see page 107



ARMSTRONG ARMOIL THREAD CUTTING OIL



ARMOIL, both clear and dark, in steel cans. Pint, quart, gallon, and 5-gallon sizes.

ARMSTRONG ARMOIL thread cutting oil is scientifically compounded and stabilized for the proper balance of sulphur and chlorine, and is available both clear and dark.

ARMOIL is not like ordinary oil—it is especially prepared to cool as you cut. It reduces heat and friction, prevents welds from forming on die teeth, assures a good clean thread every time, and prolongs die life.

Always apply ARMOIL to the pipe before starting your die—and keep oiling the pipe and dies as you continue to thread.

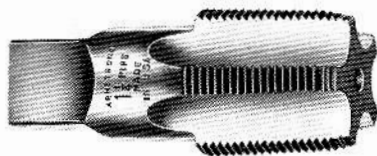
Note: No shaking required. Not to be used as a lubricating oil.



ARMOIL, both clear and dark, in ½-pint and pint plastic bottles. Simply squeeze the bottle to squirt the oil—right down to the last drop. Long, tapered spout directs oil flow accurately. Bottle is made of heavy duty, unbreakable, see-through plastic, resistant to all common oils and chemicals. Bottle cap has screw closure to prevent leakage. Throw it away when it's empty, or re-fill it just like an oil can.

No.		Description	Approx. Wt., Lb.
Clear	Dark		
CO-2	CO-22	1 Pt. Can	1.25
CO-4	CO-24	1 Qt. Can	2.50
CO-6	CO-26	1 Gal. Can	8.25
CO-8	CO-28	5 Gal. Can	42.00
BO-2	BO-12	½ Pt. Plastic Btl.	.63
BO-4	BO-14	1 Pt. Plastic Btl.	.60

ARMSTRONG PIPE TAPS

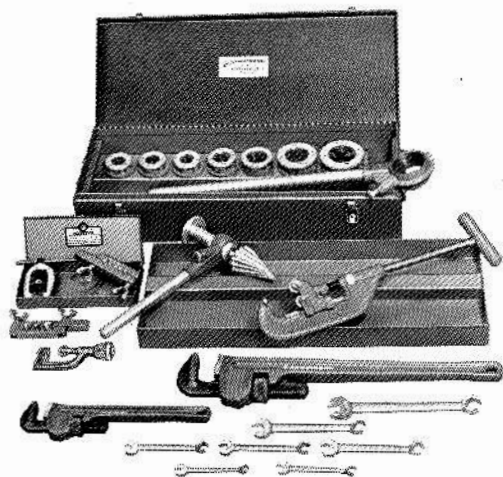


These Pipe Taps for cutting NPT (tapered) thread are made of highest quality tool steel, carefully heat treated to give maximum cutting efficiency and long service. For threading ⅛" to 2" pipe.

No.	For Pipe Size, In.	Approx. Wt., Lb.
PT-4	⅛"	.06
PT-8	¼"	.13
PT-12	⅜"	.20
PT-16	½"	.27
PT-24	¾"	.47
PT-32	1"	.83
PT-40	1¼"	1.27
PT-48	1½"	2.13
PT-64	2"	3.38

PIPE TOOL SET NO. P-23C

Pipe and Tubing Tools



This set includes a broad assortment of hand tools commonly required for pipe and tubing jobs. Tools are provided for threading, cutting, reaming and turning pipe from ⅛" up to 1¼"; for working tubing from ⅛" up to 1⅝". All tools fit neatly into specially fitted case No. C-47. This case (dimensions given on page 91) is of sturdy welded steel construction with rugged latches and finished in attractive two-tone gray. Case has steel handles at either end for carrying, and includes No. CT-7 Tote Tray. Space is ample to provide for additional small tools.

Contents

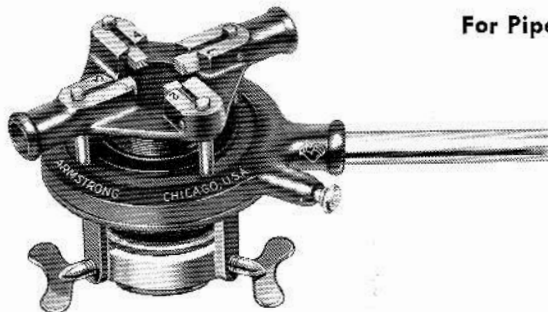
1 Each, No.	Description	Capacity, Inches	1 Each, No.	Nominal Open, In. (Both Heads)
11-7	Drop Head Threader Set	⅛" to 1¼"	Combination Flare Nut Wrenches	
2-T	Pipe Cutter	¼" to 2"		
244-R	Pipe Reamer	¼" to 2"	1312	⅜"
14-M	Pipe Wrench	¼" to 2"	1314	⅝"
24-M	Pipe Wrench	¼" to 3"	1316	1½"
7090	Tube Flaring and Cutting Set	⅛" to ¾"	1318	⅝"
TB-8	Tube Bender Set	¼" to 1⅝"	1320	⅝"
CT-7	Steel Tote Tray	¼" to 1⅝"	1322	1½"
C-47	Steel Case	26½"x10½"x7"	1324	¾"



ARMSTRONG RECEDING THREADERS

NO. 1-A RECEDING RATCHET THREADER

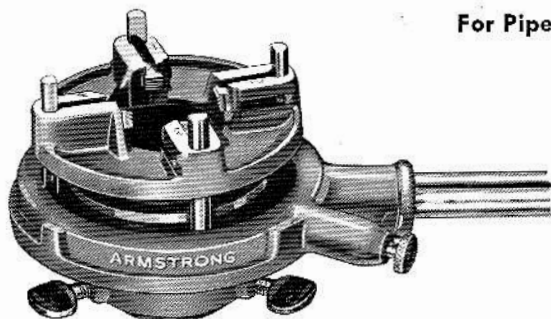
For Pipe or Conduit, 1 to 2-Inch



With ring guides and four sets of dies, this ratcheting threader, which incorporates a lead screw, can be used to quickly and accurately thread 1" to 2" pipe and conduit (NPT tapered threads), either by hand or on a power drive. Body of threader is malleable iron finished in red baked enamel. Handles are galvanized pipe. Adjustable for cutting oversized or undersized threads, and takes 2-inch couplings to thread 2-inch close nipples. When ratchet action is not required, this threader can be used as a two handled stock. Each tool is furnished with an extra handle for this purpose and comes boxed complete with guides and four sets of alloy steel NPT dies, as described on page 113.

NO. 1-R RECEDING RATCHET THREADER

For Pipe or Conduit, 1 to 2-Inch



Save time and money with this simple ratcheting threader. Uses ring guides and four sets of dies to thread 1", 1 1/4", 1 1/2", 2" pipe and conduit (NPT tapered threads). Threader body is malleable iron finished in red baked enamel. Handles are galvanized pipe. Adjustable for cutting oversize or undersize threads, and takes 2-inch couplings for threading 2-inch close nipples. Lead screw facilitates easy threading; simplicity of design provides a cost saving. Boxed complete with guides and four sets of alloy steel dies, as described on page 113.

NO. 2 GEARED RECEDING PIPE THREADER

For Pipe or Conduit, 2 1/2 to 4-Inch



This Threader operates through reduction gears which enable one man to thread 2 1/2 to 4-inch pipe with ease. The body is malleable iron finished in red baked enamel. Handles are galvanized pipe. Each threader comes complete in a wooden box with four sets of chasers for threading 2 1/2", 3", 3 1/2", and 4" pipe, one each 2 1/2", 3", 3 1/2" and 4" guide, and a set screw wrench. Note: No. HA-500A ratchet for operating the No. 2 threader must be ordered separately.

No.	Capacity, Pipe & Conduit, Size, In.	Approx. Wt., Lb.
1-A	1, 1 1/4, 1 1/2, 2	30
1-R	1, 1 1/4, 1 1/2, 2	20
2	2 1/2, 3, 3 1/2, 4	95

For best results, and to increase die life,
always use **ARMSTRONG ARMOIL** Thread Cutting Oil
when threading Pipe, Conduit, and bolts.



NO. HA-500A RATCHET HANDLE

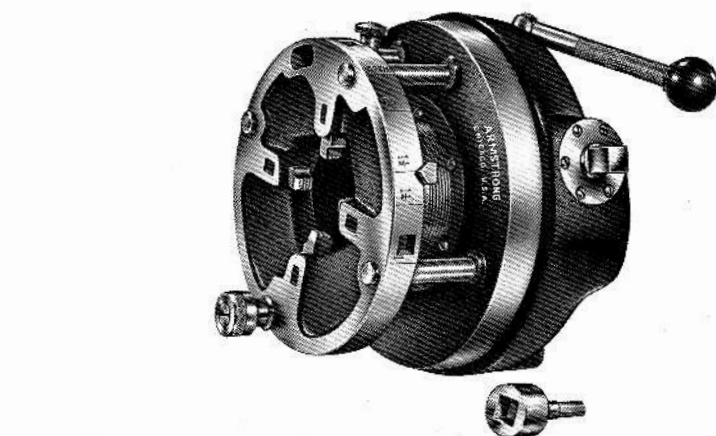
This drop forged steel ratchet for use with No. 2 geared receding threader has easy ratcheting action. Its extra length (31" overall) provides additional leverage. This ratchet also fits 4" capacity threaders of other makes. Approx. wt., 5 lbs.

For definitions of NPT, NPSM, NC, NF, See Page 107



ARMSTRONG PORTABLE POWER PIPE THREADERS

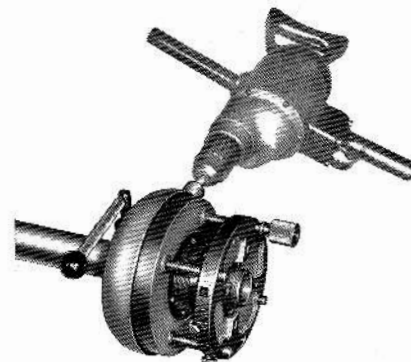
PORTABLE POWER PIPE THREADER



Driven by Any Standard
 $\frac{1}{2}$ " Electric Drill



An easier, faster, better way
to thread 1" to 2" pipe



Here is a truly unique tool. It's light weight (only 26 lbs.), threads 1" to 2" pipe with one set of dies, is powered by your standard $\frac{1}{2}$ " electric drill (air drills work too), and can be used without a vise.

You can easily carry the 165 threader to any job to thread 1" to 2" pipe quickly and effortlessly. You can thread installed pipe without having to remove it, and since there is no ratchet handle to get in the way, you can easily thread pipe in trenches or tight corners.

This tool is of sturdy construction, compact in design. All moving parts run on anti-friction bearings for ease of operation and long life. The pipe holder, unique in design, has positive gripping action and is easily adjusted. Dies are quickly adjusted to desired pipe size by a cam plate index lever. Each tool is furnished in a wooden box complete with one set of high speed dies and drive adapter.

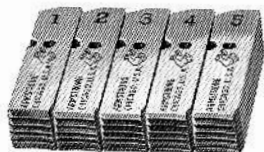
No. 165 cuts NPT (tapered) threads for pipe and conduit.

No. 165-A cuts NPT threads and NPSM (straight) threads for conduit.

No.	Capacity, In.	Approx. Wt., Lb.
165	Pipe, 1-2	26
165-A	Pipe or Conduit, 1-2	26

For best results, and to increase die life, always use ARMSTRONG ARMOIL thread cutting oil when threading pipe, conduit, bolts, etc.

ARMSTRONG DIES FOR RECEDING THREADERS



Dies for No. 2 Geared Threader



Dies for Nos. 1-A and 1-R Threaders



Dies for No. 165 and 165-A Threaders

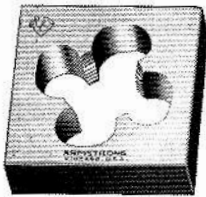
Dies for Nos. 1-A, 1-R and 2 threaders are made from special alloy steel, and each is furnished on a wire clip. All dies are carefully hobbed and backed off for clearance. Each die segment is hardened, drawn, tempered, and plainly marked with size and sequence number. Each set of dies is individually tested before leaving our factory.

Dies for No. 165 and No. 165-A threaders are made of high speed steel and are packaged one set to a box. All dies are carefully hobbed and backed off for clearance. Each die segment is hardened, drawn, tempered, and plainly marked with size and sequence number. Each set of dies is individually tested before leaving our factory.

Cat. No., Dies, Set	For Pipe, Size, In.	Approx. Wt., Lb.	Fit These Makes and Models			
			ARMSTRONG	Toledo	NYC	Ridge
D-1R32	1	1.5	1-A, 1-R	1-C	1-R	—
D-1R40	$1\frac{1}{4}$					
D-1R48	$1\frac{1}{2}$					
D-1R64	2					
D-280	$2\frac{1}{2}$	2.0	2	2, 2BR, 2BJ	2	—
D-296	3					
D-2112	$3\frac{1}{2}$					
D-2128	4					
D-165	1 thru 2	1.5	165 165-A	—	51-B	65 Series



ARMSTRONG SOLID DIES AND THREADING SETS



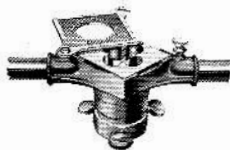
Solid dies cannot come out of adjustment, can be quickly reversed for "close up" threading, and are inexpensive. ARMSTRONG dies start easily and cut smoothly. They are made from solid blocks of alloy steel, with the teeth formed at the proper angle for best cutting rake and "backed-off" to give clearance from the point of the cutting teeth. Shape of the body gives ample chip clearance.

These dies may be used in any of the three types of die stocks pictured on this page (as well as in O-D drop head series listed on page 109).

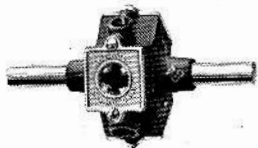
STOCKS FOR SOLID DIES



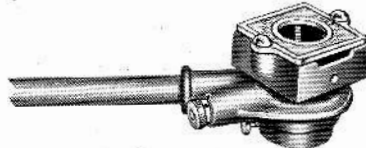
No. 0, 1, 1½



No. 2



No. 1-TS



No. 1-R, No. 2-R

ARMSTRONG stocks are of sturdy construction with malleable iron bodies finished in red baked enamel. Handles are galvanized pipe. Solid Die Stocks Nos. 0, 1, 1½, and 2, together with appropriate solid dies, afford the most economical means for threading pipe, conduit, and bolts. They can be turned by hand or used in conjunction with a power drive. No. 2 stock is equipped with a lead screw to simplify threading of larger size pipe.

ARMSTRONG Ratcheting Solid Die Stocks No. 1-R and 2-R combine the economy of the solid die with the convenience of an instantly reversible ratchet for use in "tight quarters." These stocks can be used with a power drive. No. 2-R has a lead screw to simplify threading of larger size pipe.

ARMSTRONG Triplex Die Stock No. 1-TS provides a choice of your three most frequently used pipe dies, always in place with ring guides assembled. No losing or changing of dies and ring guides. Can be used on a power drive.

Stock No.	For Die Dimensions, In.	Approx. Wt., Lb.	Stock No.	For Die Dimensions, In.	Approx. Wt., Lb.
0	2 x2	2.75	1-R	2½x2½	6.50
1	2½x2½	5.25	2-R	4 x4	11.00
1½	3 x3	6.25	1-T	2½x2½	8.25
2	4 x4	12.50			

SOLID PIPE DIES—R. H. NPT dies will be shipped if not otherwise specified. L. H. NPT dies, Whitworth dies (both R.H. and L.H.) and dies for threading I.P.S. brass and copper pipe are also available.

For Stock No.	Die Dimen., Inches	Approx. Wt., Lb.	For Threading Pipe and Conduit, Size, Inches									
			¼	⅜	½	⅝	¾	1	1¼	1½	2	
0	2x2	.38	D-04	D-08	D-012	D-016	D-024	D-032*				
1	2½x2½	1.00	D-14	D-18	D-112	D-124	D-132	D-140	D-148			
1½	3x3	1.50	D-154	D-158	D-1512	D-1516	D-1524	D-1532	D-1540	D-1548		
2	4x4	3.38				D-216	D-224	D-232	D-240	D-248	D-264	

*For OD Series drop head threader only

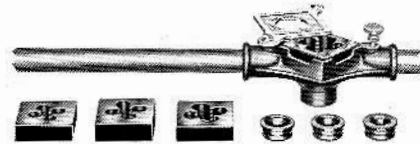
SOLID BOLT DIES—R.H., NC dies will be shipped if not otherwise specified. Left-hand NC dies and NF and Whitworth dies are available, both right and left hand.

For Stock No.	Die Dimensions, Inches	Approx. Wt., Lb.	Thread	For Threading Bolts, Diameter, Inches															
				¼	⅜	½	⅝	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	5½
0	2x2	.38	NC NF	D-08A D-08B	D-010A D-010B	D-012A D-012B	D-014A D-014B	D-016A D-016B	D-018A D-018B	D-020A D-020B	D-022A D-022B	D-024A D-024B							
1	2½x2½	1.00	NC NF	D-18A D-18B	D-110A D-110B	D-112A D-112B	D-114A D-114B	D-116A D-116B	D-118A D-118B	D-120A D-120B	D-122A D-122B	D-124A D-124B	D-126A D-126B	D-128A D-128B	D-130A D-130B	D-132A D-132B	D-136A D-136B	D-140A D-140B	
2	4x4	3.38	NC NF																

For definitions of NPT, NPSM, NC, NF, See Page 107

SOLID DIES IN SETS WITH STOCKS

Each set is individually packed in a cardboard box and includes stock and dies as listed, plus appropriate ring guides.



Sets With NPT Dies for Pipe and Conduit

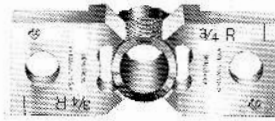
Stock No.	Die Size Inches	Set No.	Capacity, Pipe & Conduit, Size, Inches	Approx. Wt., Lb.
0	2	0-2	1½, ¾	4.50
		0-3	¾, 1½, ¾	5.00
		0-4	1¼, ¾, 1½, ¾	5.50
		0-4A	1½, 1¼, ¾, 1½	5.50
		0-5	1½, ¾, 1½, ¾	6.50
1	2½	1-2	1½, ¾	11.50
		1-3	1½, ¾, 1	12.00
		1-4	1½, ¾, 1, 1	12.50
		1-5	1½, ¾, 1, 1, 1	13.00
		1-6	1½, ¾, 1, 1, 1, 1	14.00
1½	3	1½-2	¾, 1	14.00
		1½-3	¾, 1, 1¼	16.25
		1½-4	¾, 1, 1¼, 1¼	17.00
		1½-5	¾, 1, 1¼, 1¼, 1¼	18.00
		1½-6	¾, 1, 1¼, 1¼, 1¼, 1¼	22.00
2	4	2-3	1¼, 1½, 2	25.00
		2-4	1, 1¼, 1½, 2	29.00
		2-5	¾, 1, 1¼, 1½, 2	33.00
		2-6	1½, ¾, 1, 1¼, 1½, 2	37.00
1-R	2½	1-R-3	1½, ¾, 1	9.5
		1-R-4	¾, 1, 1¼	10.5
		1-R-5	¾, 1, 1¼, 1¼	11.5
		1-R-6	¾, 1, 1¼, 1¼, 1¼	13.0
2-R	4	2-R-3	1¼, 1½, 2	20.5
		2-R-4	1, 1¼, 1½, 2	24.5
		2-R-5	¾, 1, 1¼, 1½, 2	28.5
		2-R-6	1½, ¾, 1, 1¼, 1½, 2	32.5
1-T	2½	1-T-A	¾, 1, 1¼	11.5
		1-T-B	1½, ¾, 1	11.5

Sets With Bolt Dies (NC)

Stock No.	Die Size Inches	Set No.	For Threading Bolts, Diameter, Inches	Approx. Wt., Lb.
0-B	2	0-B-2	1¼, 5/16, 3/8, 7/16, 1/2	6.5
		0-B-3	1¼, 3/8, 1/2, 5/8, 3/4	6.5
		0-B-4	1¼, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	8.0
1-B	2½	1-B-1	1½, 5/8, 3/4, 7/8, 1	13.0
		1-B-2	1¼, 3/8, 1/2, 5/8, 3/4, 7/8, 1	15.0
		1-B-3	1¼, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4	16.0
		1-B-4	1½, 5/8, 3/4, 7/8, 1, 1½, 1¼	15.0
		1-B-5	1¼, 3/16, 3/8, 7/16, 1/2, 5/8, 3/4	18.0
		1-B-6	1¼, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1, 1½, 1¼	18.5



ARMSTRONG ADJUSTABLE DIES AND THREADING SETS



ARMSTRONG adjustable dies start easily and cut smoothly. Their correct cutting angle, backed-off teeth, correct throat angle, and ample chip clearance ensure a good thread every time. These alloy steel dies can

be used with either of the two styles of ARMSTRONG adjustable die stocks, standard or ratcheting type, and are interchangeable with similar dies of standard dimensions.

ADJUSTABLE BOLT DIE

NC dies will be shipped if not otherwise specified. Left-hand NC dies, and NF and Whitworth dies (both R.H. and L.H.) are also available.

For Stock No.	Die Width, Inches	Approx. Wt., Lb.	Thread	For Threading Bolts, Diameter, Inches															
				1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2
2-A	1 1/2	.75	NC NF	D-2A8A	D-2A10A	D-2A12A	D-2A14A	D-2A16A	D-2A18A	D-2A20A	D-2A24A	D-2A28A	D-2A32A	D-2A36A	D-2A40A				
3-A	2 1/2	2.38	NC NF	D-2A8B	D-2A10B	D-2A12B	D-2A14B	D-2A16B	D-2A18B	D-2A20B	D-2A24B	D-2A28B	D-2A32B	D-2A36B	D-2A40B				
																D-3A32A	D-3A36A	D-3A40A	D-3A44A
																D-3A48A	D-3A52A	D-3A56A	D-3A60A
																D-3A64A	D-3A68A	D-3A72A	D-3A76A

ADJUSTABLE PIPE DIES

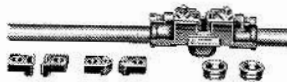
NPT dies will be shipped if not otherwise specified. Left-hand NPT dies, and Whitworth dies (both R. H. and L. H.) are available.

For Stock No.	Die Width, Inches	Approx. Wt., Lb.	For Threading Pipe or Conduit, Size, Inches									
			1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/2	3	4
1 1/2-A	1 1/8	.15	D-15A4	D-15A8	D-15A12	D-15A16	D-15A24					
2-A	1 1/2	.75	D-2A4	D-2A8	D-2A12	D-2A16	D-2A24	D-2A32				
3-A	2 1/2	2.38				D-3A16	D-3A24	D-3A32	D-3A40	D-3A48	D-3A64	

ADJUSTABLE DIES IN SETS WITH STOCKS

Sets With Bolt Dies (NC)

Stock No.	Set No.	For Threading Bolts, Diameter, Inches	Approx. Wt., Lb.
2-A	2-AB-1	1/2, 5/8, 3/4, 7/8, 1	11.50
	2-AB-2	1 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1	13.50
	2-AB-3	1 1/2, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 1 1/2, 1 1/4	13.50
	2-AB-4	1 1/2, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 1 1/2, 1 1/4	13.50
	2-AB-5	1 1/2, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 1 1/2, 1 1/4	15.50
	2-AB-6	1 1/2, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 1 1/2, 1 1/4	17.00
3-A	3-AB-1	1, 1 1/4, 1 1/2, 1 3/4, 2	33.00
	3-AB-2	1, 1 1/8, 1 1/4, 1 1/2, 1 3/4, 2	37.00



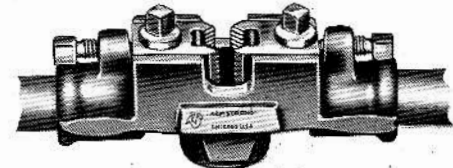
Each set is individually packed in a cardboard box and includes stock and dies as listed. Sets are available with either single adjustable guide, or with appropriate assortment of ring guides. A drop forged set screw wrench is furnished with each set.

Sets With NPT Dies for Pipe and Conduit

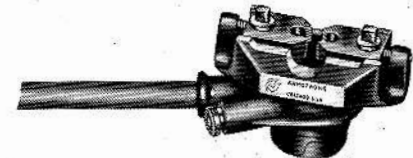
Stock No.	Set No.		Capacity, Pipe & Conduit, Size, Inches	Approx. Wt., Lb.	
	With Ring Guides	With Adjustable Guide		With Ring Guides	With Adjustable Guide
1 1/2-A	1 1/2-A-2	—	1/2, 3/4	4.30	—
	1 1/2-A-3	—	3/8, 1/2, 3/4	4.45	—
	1 1/2-A-4	—	1/4, 3/8, 1/2, 3/4	4.60	—
2-A	2-A-2	2-A-2A	1/2, 3/4	11.00	9.50
	2-A-3	2-A-3A	1/2, 3/4, 1	12.00	10.50
	2-A-4	2-A-4A	3/8, 1/2, 3/4, 1	13.00	11.50
	2-A-5	2-A-5A	1/4, 3/8, 1/2, 3/4, 1	14.00	12.50
	2-A-6	2-A-6A	1/8, 1/4, 3/8, 1/2, 3/4, 1	15.00	13.50
3-A	3-A-2	3-A-2A	1 1/2, 2	25.50	24.00
	3-A-3	3-A-3A	1 1/4, 1 1/2, 2	30.50	29.00
	3-A-4	3-A-4A	1, 1 1/4, 1 1/2, 2	33.50	32.00
	3-A-5	3-A-5A	3/4, 1, 1 1/4, 1 1/2, 2	38.50	37.00
	3-A-6	3-A-6A	1/2, 3/4, 1, 1 1/4, 1 1/2, 2	42.50	41.00
2-BR	2-BR-3	2-AR-3	1/2, 3/4, 1	10.00	10.50
	2-BR-4	2-AR-4	3/8, 1/2, 3/4, 1	11.00	11.25
	2-BR-5	2-AR-5	1/4, 3/8, 1/2, 3/4, 1	12.00	12.00
	2-BR-6	2-AR-6	1/8, 1/4, 3/8, 1/2, 3/4, 1	13.00	13.00
3-BR	3-BR-3	3-AR-3	1 1/4, 1 1/2, 2	25.25	21.00
	3-BR-4	3-AR-4	1, 1 1/4, 1 1/2, 2	27.50	23.50
	3-BR-5	3-AR-5	3/4, 1, 1 1/4, 1 1/2, 2	29.50	26.00
	3-BR-6	3-AR-6	1/2, 3/4, 1, 1 1/4, 1 1/2, 2	32.50	28.50

STOCKS FOR ADJUSTABLE DIES

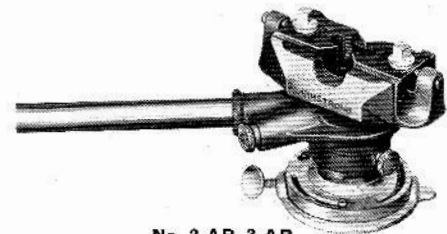
ARMSTRONG adjustable die stocks are of sturdy construction. Bodies are of malleable iron, finished in red baked on enamel, handles made of galvanized pipe.



No. 1-A, 2-A, 3-A



No. 2-BR, 3-BR



No. 2-AR, 3-AR

ADJUSTABLE GUIDES



Guide is instantly adjustable to size desired and locks to properly center pipe, conduit, or bolt for threading. Finished in cadmium plate.

STOCKS

No.	For Stock No.	Capacity, Pipe, Sizes, Inches	Approx. Wt., Lb.
292	2-A. 2-BR	1/2 to 1	1.63
293	3-A. 3-BR	1/2 to 2	5.00

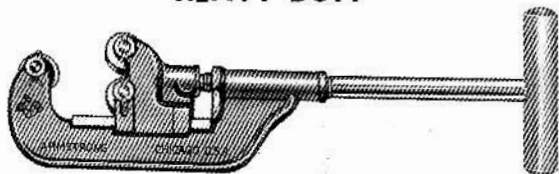
Die Stock No.	For Die Width, Inches	Approx. Wt., Lb.
1 1/2-A	1 1/8	4.00
2-A	1 1/2	5.75
3-A	2 1/2	12.25
2-BR	1 1/8	8.50
3-BR	2 1/2	17.00
2-AR	1 1/2	7.38
3-AR	2 1/2	17.25



ARMSTRONG PIPE CUTTERS

Select the exact tool—or tools—you need from this broad line of pipe cutters, each style with its own important features and advantages. Every ARMSTRONG Pipe Cutter is quality-designed, quality-built, and factory tested to ensure accurate tracking and efficient cutting.

HEAVY DUTY



No. 1-T, 2-T

Only ARMSTRONG offers all these important features in these basic, necessary tools:

- Drop forged frame means less weight, greater strength.
- Back edge of frame rests against power drive arm, prevents damage to screw when cutter is used on a power drive.
- Pins and rollers are carefully machined of tool steel, then hardened—rollers eliminate burr raised by cutting action.
- Extra large handle permits a good grip, plenty of leverage.
- Rollers and cutter wheels are interchangeable, facilitating conversion to a three-wheel cutter for "close-quarters" work.

Finished in red baked enamel. Individually boxed.

No.	Capacity, Pipe, Size, In.	Approx. Wt., Lb.
1-T	$\frac{1}{8}$ to $1\frac{1}{4}$	5.75
2-T	$\frac{1}{8}$ to 2	6.25

HEAVY DUTY—WIDE ROLL



No. 2-TA

This tool is especially designed for use with power drives. It has the same important features as the No. 2-T, plus an elongated pin that supports two additional rollers. These rollers provide a greater bearing surface and thereby prevent cocking or twisting of the cutter when used on a power drive.

No.	Capacity, Pipe, Size, In.	Approx. Wt., Lb.
2-TA	$\frac{1}{8}$ to 2	7.00

HEAVY DUTY



No. 4-A

Frame is of malleable iron. A second handle allows two-man use of this tool. Cutter wheels and rollers are interchangeable, facilitating conversion to a three-wheel cutter for "close-quarters" work. Finished in red baked enamel. Individually boxed.

No.	Capacity, Pipe, Size, In.	Approx. Wt., Lb.
4-A	2 to 4	20.00

ARMSTRONG KNIFE BLADE PIPE CUTTER WHEELS



Accurately machined from selected alloy tool steel, heat treated, hardened, oil tempered. These are thin, sharp cutter wheels that cut fast, yet hold their edge well. Packaged ten to a box. They are standard in all ARMSTRONG Pipe Cutters and can also be used in cutters made by other manufacturers, as listed.

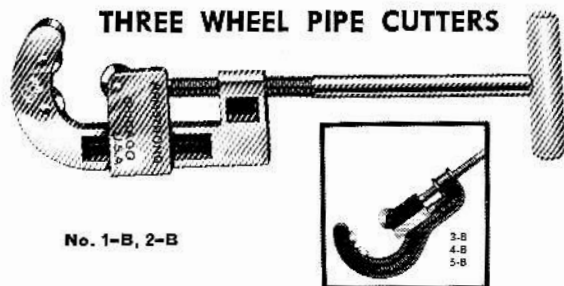
All ARMSTRONG pins and rollers are made of tool steel, carefully machined and hardened, and will interchange with similar parts of other makes. Order extra pins and rollers by description.

Wheel No.	Approx. Weight, Lb.	Fits						Wheel No.	Approx. Weight, Lb.	Fits		
		Armstrong	Ridge	Nye	Trimco	Toledo Beaver	Reed			Armstrong	Barnes	Erie
2T	.05	1-T	1	1N	1T	2	1-1	1-B	.03	1-B	1	1B
		2-T	2	2N	2T	202	1-3	2-B	.04	2-B	2	2B
		2-TA	1A	2NP		102PD	1-4	3-B	.05	3-B	3	3B
			2A			2X	2-1	4-B	.10	4-B	4	4B
			201			20	2-3	5-B	.15	5-B	5	5B
			202			A Mach.	2-4					
			360			B Mach.	PDC2					
3T	.08			3T	3T		3RB	1S	.04	1-S		1S
4A	.04	4-A	3S	4N				2S	.05	2-S		2S
			3					3S	.06	3-S		3S, 4S
			4S					4-S		4-S		5S
			4					5-S		5-S		



ARMSTRONG PIPE CUTTERS

THREE WHEEL PIPE CUTTERS

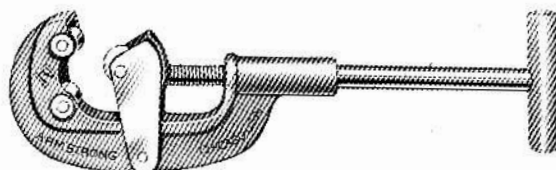


No. 1-B, 2-B

While heavy duty pipe cutters may be converted from one- to three-wheel tools, a three-wheel "Barnes Type" cutter in your tool kit will eliminate the need for time-consuming interchange of cutter wheels and rollers. Bodies are malleable iron. No. 1-B and 2-B bodies are burnished bright and clear lacquered. No. 3-B, 4-B and 5-B bodies are finished in red baked enamel as are handles of all sizes.

No.	Capacity, Pipe Size, Inches	Approx. Wt., Lb.
1-B	$\frac{1}{8}$ to 1	3.00
2-B	$\frac{1}{2}$ to 2	5.25
3-B	$1\frac{1}{2}$ to 3	8.00
4-B	$2\frac{1}{2}$ to 4	12.00
5-B	4 to 6	20.00

PIVOT-ARM PIPE CUTTERS



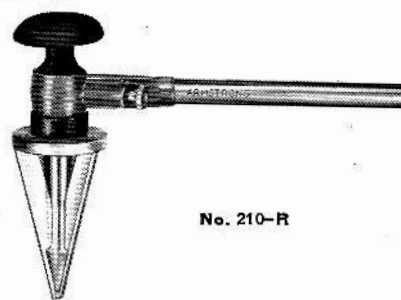
Simplicity in the design of these "Saunders Type" Pipe Cutters means a cost savings for you. Ideal for use where working space is not limited, such as on power drives. Bodies are of malleable iron. Bodies and handles are finished in red baked enamel. Hardened screw point bears on hardened tool steel insert in rear of pivoting arm, for longer wear, better service.

No.	Capacity, Pipe Size, Inches	Approx. Wt., Lb.
1-S	$\frac{1}{8}$ to 1	3.0
2-S	1 to 2	6.0
3-S	2 to 3	11.5
4-S	$2\frac{1}{2}$ to 4	15.0
5-S	4 to 6	23.0

ARMSTRONG RATCHET REAMERS



No. 242-R, 243-R, 244-R



No. 210-R

General Service Ratchet Reamers for removing internal burrs caused by cutting pipe.

Ratchet collar is drop forged for greater strength, less weight, finished in red baked enamel. It will accommodate Series 00 die heads (listed on page 110), and thus may be used as a threader in an emergency. Ratchet mechanism is instantly reversible.

Complete Ratchet Reamer Units

Reamer Unit No.	Includes Reamer No.	Capacity, Pipe Size, Inches	Approx. Wt., Lb.
210-R	210	$\frac{3}{8}$ to 3	5.75
242-R	242	$\frac{1}{8}$ to 1	3.88
243-R	243	$\frac{1}{4}$ to $1\frac{1}{4}$	4.00
244-R	244	$\frac{1}{4}$ to 2	4.88

Extra Reamers

Nos. 242, 243, and 244 spiral fluted reamers are drop forged of high grade tool steel, milled and ground to form, hardened and cadmium plated. No. 210 insert-type reamer contains three specially ground insert blades that may—if ever necessary—be removed and reground or replaced.

No. 210-A Adapter

Furnished as a part of reamer units 242-R, 243-R, and 244-R. It is not included with unit No. 210-R (which incorporates No. 210 round shank type reamer), but may be ordered separately and used to adapt the 210-R unit to bit type reamers No. 242, 243, and 244.



No.	Capacity, Pipe Size, In.	Shank Style	Approx. Wt., Lb.
210	$\frac{3}{8}$ to 3	Round	2.63
242	$\frac{1}{8}$ to 1	Bit	.50
243	$\frac{1}{4}$ to $1\frac{1}{4}$	Bit	.69
244	$\frac{1}{4}$ to 2	Bit	1.50



Bit Type



Round Shank



ARMSTRONG CHAIN PIPE TONGS

All parts of ARMSTRONG Chain Tongs are made from specially selected material processed to give toughness and strength and to extend tool life.

Jaws are drop forged from special high carbon steel, carefully milled, heat treated, hardened and tested for toughness and lasting qualities, and finished in red baked enamel.

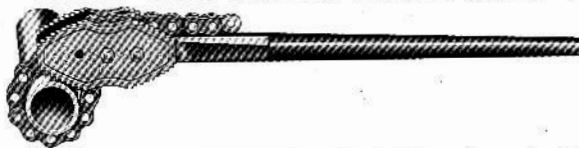
Handles are forged from spring steel selected to give required stiffness. Finish is natural steel, grit blasted and oil coated.

Flat link chains, manufactured in our own plant, are heat treated and proof-tested under quality control. Each carries a lead seal indicating that it has been tested to $\frac{2}{3}$ catalog strength.

With ARMSTRONG Chain Pipe Tongs you are certain of strength beyond your greatest needs—a proven safety factor on which you can always rely.

Individual replacement parts are available for all ARMSTRONG Chain Tongs. Specify tong number and part required, when ordering.

TONGS WITH DOUBLE ENDED JAWS



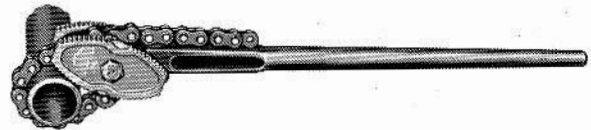
ARMSTRONG Reversible-Jaw Chain Tongs have double ended jaws which may be quickly changed, end for end, if the teeth become burred or dull from long use. This feature gives double life.

With Flat Link Chains Only

No.	*For Pipe Size, Inches	Approx. Length Inches	Flat Chain Length Inches	Breaking Strain Lb.	Approx. Wt., Lb. Complete
30	$\frac{1}{8}$ to $\frac{3}{4}$	13 $\frac{3}{4}$	9 $\frac{1}{2}$	5,070	1.75
31	$\frac{1}{8}$ to $1\frac{1}{2}$	20	13 $\frac{1}{2}$	9,400	5.75
32	$\frac{1}{4}$ to $2\frac{1}{2}$	27	17 $\frac{1}{2}$	13,800	10.00
33	$\frac{3}{4}$ to 4	37	22 $\frac{1}{2}$	17,600	16.00
33 $\frac{1}{2}$	1 to 6	44 $\frac{1}{2}$	32	20,100	24.00
34	1 $\frac{1}{2}$ to 8	50 $\frac{1}{2}$	40 $\frac{1}{2}$	22,000	31.00
35	2 to 12	64 $\frac{1}{2}$	55 $\frac{1}{2}$	31,000	50.00
*16	4 to 18	87	74 $\frac{1}{2}$	56,000	137.00

*Wrenches for pipe sizes larger than 12 inches are supplied only in non-reversible jaw form as shown below.

REVERSIBLE TONGS



Reversible Chain Tongs can be used to turn pipe in either direction without having to remove the tongs from the pipe. The outer jaws can be removed from the handle to make a fittings-tong for narrow heads and flanges. Jaws are removed by taking out a single bolt and self-locking nut. Outer jaws are reversible end-for-end, to provide double jaw life.

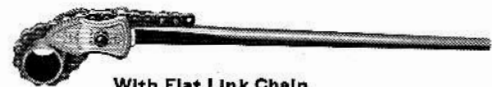
With Flat Link Chains Only

No.	For Pipe Size, In.	Approx. Length, In.	Flat Chain Length, In.	Breaking Strain, Lb.	Approx. Wt., Lb.
27	$\frac{1}{4}$ to $2\frac{1}{2}$	27	17 $\frac{1}{2}$	13,800	12.3
37	$\frac{3}{4}$ to 4	37	22 $\frac{1}{2}$	17,600	19.7
47	1 to 6	44 $\frac{1}{2}$	32	20,100	29.3
57	1 $\frac{1}{2}$ to 8	50 $\frac{1}{2}$	40 $\frac{1}{2}$	22,100	43.0

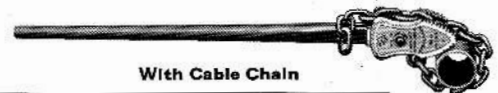
TONGS WITH SINGLE ENDED JAWS

By means of the greatly increased bearing of jaw sockets upon the bar, combined with extra large hardened steel bolt, the jaws are held solidly in place under the most severe use.

The bolt is extra large and the shackle or connecting link is drop forged from alloy steel. Shipped with flat link chain unless otherwise specified.



With Flat Link Chain



With Cable Chain

No.		Capacity, Size Pipe Inches	Approx. Length Inches	Flat Link Chain		Cable Chain		Approx. Wt., Lb. Complete
Flat Link Chain	Cable Chain			Length Chain Inches	Breaking Strain Lb.	Length Chain Inches	Breaking Strain Lb.	
10	10-CL	$\frac{1}{8}$ to $\frac{3}{4}$	14	9 $\frac{1}{2}$	5,070	9 $\frac{3}{4}$	.....	1.75
11	11-CL	$\frac{1}{8}$ to $1\frac{1}{2}$	20	13 $\frac{1}{2}$	9,400	14 $\frac{1}{2}$	6,000	6.00
12	12-CL	$\frac{1}{4}$ to $2\frac{1}{2}$	27	17 $\frac{1}{2}$	13,800	18	9,000	10.00
13	13-CL	$\frac{3}{4}$ to 4	37	22 $\frac{1}{2}$	17,600	27	12,500	16.50
13 $\frac{1}{2}$	13 $\frac{1}{2}$ -CL	1 to 6	44	32	20,100	33 $\frac{1}{2}$	14,300	23.00
14	14-CL	1 $\frac{1}{2}$ to 8	51	40 $\frac{1}{2}$	22,000	42	15,700	32.00
15	15-CL	2 to 12	65	55 $\frac{1}{2}$	31,000	57	21,800	53.00
16	16-CL	4 to 18	87	74 $\frac{1}{2}$	56,000	76	40,000	137.00

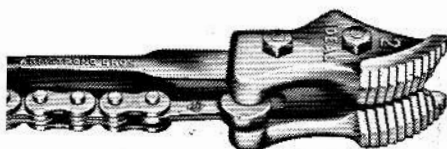


ARMSTRONG CHAIN PIPE TONGS

IDEAL PIPE AND FITTINGS TONGS

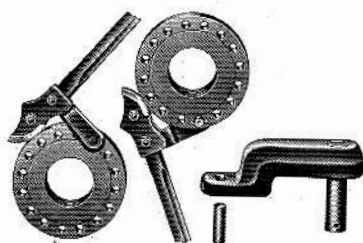
For Pipe, Fittings, and Flanges

Jaws have straight teeth for pipe and V-shaped teeth for fittings. This tool incorporates the quality features common to all ARMSTRONG chain tongs as described on page 118.



No.		CAPACITY		Approx. Length Inches	Flat Link Chain		Cable Chain		Approx. Wt., Lb. Complete
		Size Pipe Inches	Size Fittings Inches		Length Inches	Breaking Strain Lb.	Length Inches	Breaking Strain Lb.	
2	2-CL	1/2 to 3 1/2	1/2 to 3	27	17 1/2	13,800	21	9,000	10
3	3-CL	1 to 5	1 to 4	38	22 1/2	17,600	28	12,500	18
4	4-CL	1 to 8	1 to 6	49	32	22,000	41 1/2	15,700	27
5	5-CL	2 to 12	2 to 10	61	50	31,000	56 1/2	21,800	52

IDEAL FLANGE LINK



No.	For Tong No.	Capacity, Flange, Size, In.	Approx. Wt., Lb.
2FL	2	1 to 4	1.25
3FL	3	2 to 6	1.75
4FL	4	2 to 8	2.75
5FL-1	5	5 to 16	4.62
5FL-2	5	14 to 20	
5FL-3	5	18 to 24	

This cast steel link-and-pin attaches to the Ideal Chain Tong in place of the chain, to turn flanges right or left from either side. Six sizes for flanges to 24 inches.

ARMSTRONG PIPE WRENCHES



Straight Pattern



Offset Pattern

Straight No.	Offset No.	Capacity Pipe, Size, Inches	Length Inches	Approx. Wt., Lb.
6M		1/8 to 3/4	6	.44
8M	8E	1/8 to 1	8	.88
10M	10E	1/8 to 1 1/2	10	1.88
12M		1/8 to 2	12	2.13
14M	14E	1/4 to 2	14	3.39
18M	18E	1/4 to 2 1/2	18	5.50
24M		1/4 to 3	24	9.25
36M		1/4 to 4 1/2	36	16.13
48M		1 to 6	48	30.00

ARMSTRONG Pipe Wrenches are scientifically designed for maximum strength and safety with minimum weight. Handles are made of pearlitic malleable alloy. Drop forged calibrated hook jaw and double action spring insure easy adjustment, instant gripping and release of pipe. Adjusting nut spins easily. Insert jaw is replaceable. Housing is finished in red baked enamel.

ARMSTRONG Offset Pipe Wrenches incorporate the same important features as the straight pattern, but the hook jaw is offset to facilitate turning pipe in close quarters.

As are all ARMSTRONG Tools, our Pipe Wrenches are guaranteed to your satisfaction.

STRAP WRENCHES



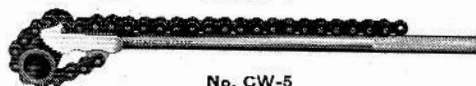
ARMSTRONG Strap Wrenches are designed for use on highly polished metal, plastic pipe and tubing. Specially treated woven strap prevents marring or crushing of surfaces and provides great gripping power. Body of wrench is finished in red baked enamel.

Tool No.	Capacity, Inches	Approx. Wt., Lb.
12-S	1/2 to 2	1.56
18-S	1/2 to 5	2.82

CHAIN WRENCHES



No. CW-4



No. CW-5

ARMSTRONG Chain Wrenches are drop forged from selected steel, heat treated and chrome plated. Heat treated chain wraps around pipe easily. An excellent tool for working in close quarters.

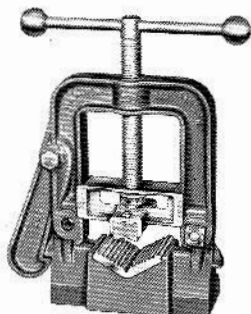
Tool No.	Capacity, Inches O.D.	Length, Inches	Approx. Wt., Lb.
CW4	3/4 to 4	11	1.4
CW5	3 to 6	20	5.25



ARMSTRONG PIPE VISES HINGED PIPE VISES

Nos. 231, 232, 233, 234

ARMSTRONG vises open and close much more quickly than conventional pipe vises. Frictionless disc enables you to exert plenty of gripping pressure on the pipe and prevents wear, since screw at no time bears on the back of the jaw. Full length, one-piece jaws prevent bending of small size pipe. Malleable iron frames and bases, finished in red baked enamel, are light weight, yet strong beyond need. Jaws, handle, and screw finished in cadmium plate.



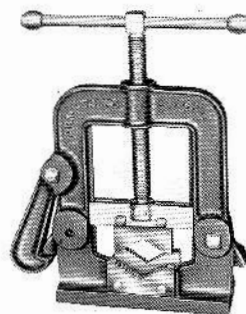
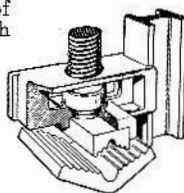
No. 231, 232, 233, 234 with 1-piece, full length jaws.

Nos. 73, 74, 75

For larger size pipe. Proportionately heavier frames and bases with reinforced bolt holes in base, drop forged hooks, and two-piece lower jaw for firmer gripping. Finished in red enamel, with jaws, handle and screw cadmium plated.

Double pitch thread on screw speeds opening-closing action, requires less pressure on handle, and jaws move twice as far per turn of handle as vise with standard pitch screw.

Frictionless disc feature of No. 231-234 vises prevents binding and wear, provides effortless operation.



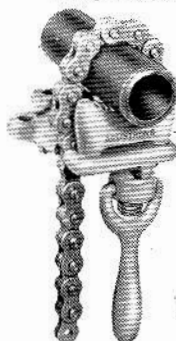
No. 73, 74, 75 with 2-piece lower jaw.

No.	Holds Pipe, Size, Inches	Approx. Wt., Lb.
231*	1/8 to 1 1/2	3.50
232*	1/8 to 2	8.00
233*	1/8 to 2 1/2	12.50
234*	1/8 to 3 1/2	15.75
73	1/8 to 4 1/2	25.00
74	1/8 to 6	49.00
75	1 to 8	81.00

*Has 1-piece full length jaws.

CHAIN PIPE VISES

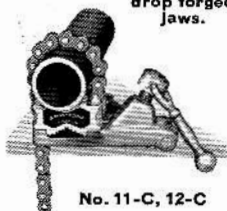
Drop Forged Chain Vises



No. 1-C, 2-C, 3-C, 4-C



Nos. 1-C, 2-C, 11-C and 12-C have 1-piece drop forged jaws.



No. 11-C, 12-C

Available in two styles, either with handle above or below the base. Base, handle, and jaw, all finished in red baked enamel, are drop forged to provide maximum strength with minimum weight. 1-C, 2-C, 11-C and 12-C jaws are forged in one piece. This provides most solid construction and affords full support for holding small size pipe, thereby preventing bending. 11-C and 12-C jaws are reversible for double life.

No.	Holds Pipe, Size, In.	Approx. Wt., Lb.
1-C	1/8 to 2 1/2	5.00
2-C	1/4 to 4	13.38
3-C	1/4 to 6	19.50
4-C	1/4 to 8	32.25
1-M	1/8 to 2 1/2	4.50
2-M	1/8 to 4	11.25
11-C	1/8 to 2 1/2	6.40
12-C	1/4 to 4 1/2	15.00

Malleable Chain Vises

These are lighter duty and lower priced than our drop forged chain vises. Bases and handles are of malleable iron finished in red enamel.

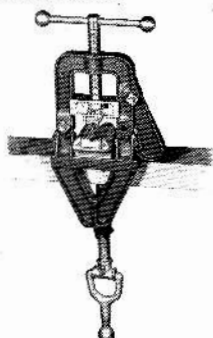
Note:—The chains furnished on all ARMSTRONG chain pipe vises are manufactured in our own plant, are heat treated and proof tested under quality control.



No. 1-M, 2-M

KIT VISES

Kit vises may be clamped onto plank, bench or post. They have all features of the 231-234 hinged vises described above.

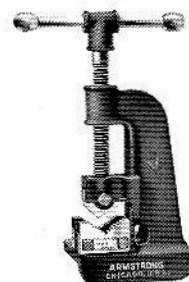
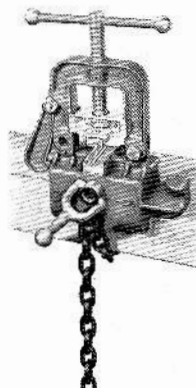


Kit Vises No. 241, 142BX, 143BX

POST VISES

These vises attach to posts, poles, pipes, trees, etc., by means of a chain. They provide a light weight, portable means for pipe-holding.

No. 163X Hinged Post Vise—Chain wraps around post, hooks into slot, and is tightened by handle. Fits posts up to 10" in diameter. Pipe bender at rear of base.



No. 10 Open Side Post Vise—Furnished complete with 31" Chain and wedge. Can be used on posts up to 4" in diameter or, if desired, can be bolted permanently to a bench. Vise without chain—No. 10A.

Type	No.	Holds Pipe, Size, In.	Approx. Wt., Lb.
K	241*	1/8 to 1 1/2	4.00
I	142BX*	1/8 to 2	11.50
T	143BX*	1/8 to 2 1/2	15.50
P	163X*	1/8 to 2 1/2	20.00
O	10	1/8 to 2	12.75
S	10A	1/8 to 2	10.87
T			

*Has 1-piece full length jaws.



ARMSTRONG VISE STANDS

An ARMSTRONG Three-legged Vise Stand provides a sturdy mobile workbench for "on-the-job" use. Legs (and trays, where applicable) fold together for easy movement from job to job.

Nos. 933 and 934C HEAVY DUTY VISE STANDS

Rugged general purpose stands. Table measures 12"x14" and has pipe rest, three pipe benders, slots for hanging tools, coiling brace screw, positions for oil can and dope pot. Flat feet with rubber inserts prevent sliding. Furnished complete with legs, vise and folding tray as illustrated at left.

Nos. 933-A and 934C-A HEAVY DUTY VISE STANDS

Same as 933 and 934-C except that they have no folding tray. Legs are drilled to accommodate tray which may be added at any time.

Nos. 833-BX and 833-C UTILITY VISE STANDS

Light weight, smaller vise stands. Table measures 9 $\frac{3}{4}$ "x11" and has pipe rest, single pipe bender, slots for hanging tools, position for oil can. Flat feet with rubber inserts prevent sliding. Furnished complete with legs and vise as illustrated at left.

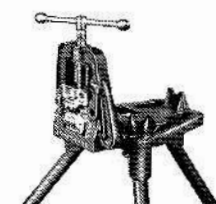
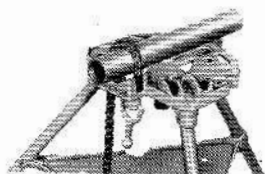
No. 937 ARMSTRONG ALUMINUM VISE STAND

Aluminum construction makes this the ideal vise stand for use when frequent movement from job to job is required. Combines the firmness of the 934C stand with extremely light weight for easy mobility. Cast aluminum table measures 12"x14" and has pipe rest, three pipe benders, slots for hanging tools and positions for oil can and dope pot. Legs of aluminum alloy tubing have flat feet with rubber inserts to prevent sliding. Chain secures folding legs together for carrying.

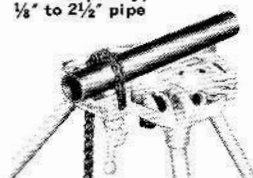
No. 933
(Without tray, No. 933-A)
Capacity, $\frac{1}{8}$ " to $2\frac{1}{2}$ " pipe



No. 934-C
(Without tray, No. 934C-A)
Capacity, $\frac{1}{8}$ " to 4" pipe



No. 833-BX
Capacity,
 $\frac{1}{8}$ " to $2\frac{1}{2}$ " pipe



No. 937
Capacity, $\frac{1}{8}$ " to 4" pipe

No. 833-C
Capacity,
 $\frac{1}{8}$ " to $2\frac{1}{2}$ " pipe



No.	Capacity of Vise, Pipe, Size, In.	Approx. Wt., Lb.
933	$\frac{1}{8}$ to $2\frac{1}{2}$	54.5
933-A	$\frac{1}{8}$ to $2\frac{1}{2}$	47.0
934C	$\frac{1}{8}$ to 4	42.0
934C-A	$\frac{1}{8}$ to 4	51.5
937	$\frac{1}{8}$ to 4	19.6
833BX	$\frac{1}{8}$ to $2\frac{1}{2}$	42.0
833C	$\frac{1}{8}$ to $2\frac{1}{2}$	40.0

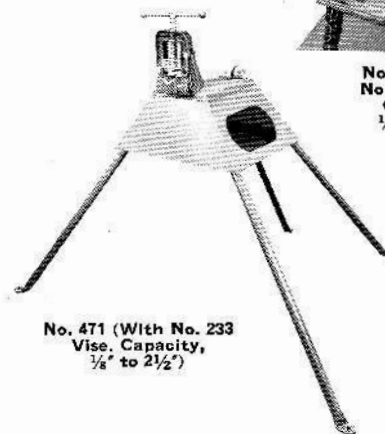
FOUR-LEGGED VISE STANDS

ARMSTRONG 4-legged Vise Stands are slightly less easy to move than the 3-legged stands, but provide a much more solid, spacious work area. They are ideal for use on jobs which do not require frequent movement of the stand. The stand can, however, be quickly and easily disassembled for movement when required. The large, solid shelf measures 19 $\frac{1}{2}$ "x18" and provides ample storage space for tools, oil cans, rags, etc. Table top is 8"x13" and is drilled to accommodate either No. 233 hinged vise or No. 12-C chain vise, described on page 120. Stand may be ordered complete with either No. 233 or No. 12-C vise, or with no vise.

No.	Capacity of Vise, Pipe, Size, In.	Approx. Wt., Lb.
4	Furnished without vise	62.0
412	$\frac{1}{4}$ to $4\frac{1}{2}$	75.0
471	$\frac{1}{8}$ to $2\frac{1}{2}$	72.0



No. 412 (With
No. 12-C Vise.
Capacity,
 $\frac{1}{4}$ " to $4\frac{1}{2}$ ")



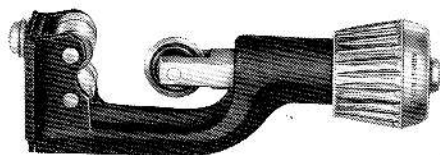
No. 471 (With No. 233
Vise, Capacity,
 $\frac{1}{8}$ " to $2\frac{1}{2}$ ")



ARMSTRONG TUBING TOOLS

Be sure your tool kit is equipped to handle any tubing job you may encounter. Each item in this broad line of tube working tools is a quality tool designed to reduce effort, increase efficiency and ensure top quality work.

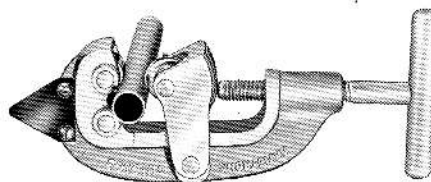
No. 115 LIGHT TUBE CUTTER



A compact tool, only five inches long, for cutting brass, copper and other tubing from $\frac{1}{8}$ " to $1\frac{1}{8}$ " O.D. Grooved rollers permit cutting of tube up close to flare. Easy removal of cutter wheel for replacement when necessary. Extra large handle. Slide moves horizontally, keeping cutter wheel always on center and assuring smooth, even cuts, perfect tracking. Retractable reamer blade mounted at front for burr removal. Each cutter individually boxed and includes an extra cutter wheel.

No.	Cuts Tubing O.D., Inches	Approx. Wt., Lb.
115	$\frac{1}{8}$ to $1\frac{1}{8}$	.75

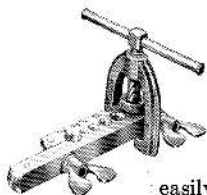
No. 200 HEAVY DUTY TUBING CUTTER



For cutting steel tubing and thin walled conduit as well as copper and aluminum tubing from $\frac{1}{4}$ " to $1\frac{1}{2}$ " O.D. Malleable iron body is cadmium plated to prevent rusting. Reamer blade is fixed in position ready for use in removing burrs. Each tool packed individually in a cardboard box.

No.	Cuts Tubing O.D., Inches	Approx. Wt., Lb.
200	$\frac{1}{4}$ to $1\frac{1}{2}$	3.00

ARMSTRONG TUBE FLARING TOOLS



Use an ARMSTRONG Flaring Tool to apply the correct flare to brass, aluminum or soft copper tubing in your garage, aircraft, oil burner, refrigeration or plumbing work. Flaring bar is cold rolled steel, heat treated. Yoke is drop forged of steel to give greater strength and longer service. Yoke slides over the bar easily to position at proper opening. Cone produces a flare of 90° included angle. Finished in chrome plate. Each tool individually packed in a cardboard box.

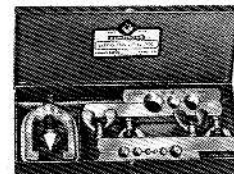
No.	Flares Tubing, O.D. Inches	Approx Wt., Lb.
7075	$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$	1.8
7076	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$	1.8
7077	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$	1.8
7078	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$	1.8
7079	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	1.8

TUBE FLARING SET

No. 7080 wide range flaring tool set—for $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ " O.D. tubing. Complete in steel case No. C-50. Approximate weight, 3.8 lbs.



7090



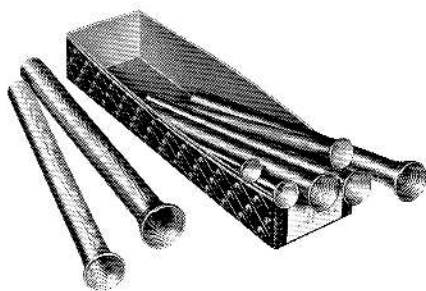
7080

TUBE CUTTING AND FLARING SET

No. 7090 combination tube cutting and flaring set—consists of No. 7080 flaring set and No. 115 light tube cutter, complete in steel case No. C-51. Approximate weight, 4.8 lbs.

ARMSTRONG TUBE BENDERS

These spring type tube benders enable you to bend soft copper and aluminum tubing quickly, easily, and without danger of distorting or crushing tubing at the bending point. Benders are easily removed after bend has been made. Finished in bright zinc plate, packed five to the box.

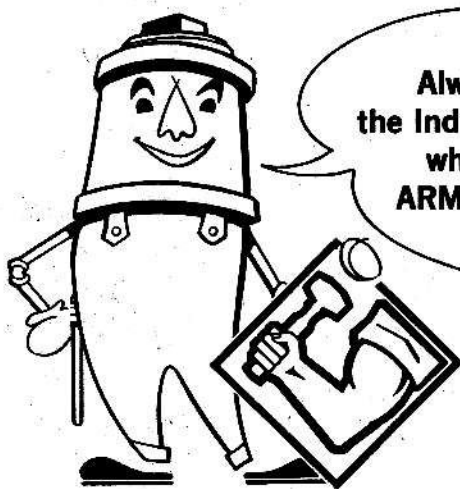


Tube Bender Sets

Set No.	Capacity, Tubing, O.D., Inches	Approx. Wt., Lb.
TB-6	$\frac{1}{4}$ to $\frac{5}{8}$	1.75
TB-8	$\frac{1}{4}$ to $\frac{1}{8}$	3.00

Tube Benders

No.	Bends Tubing, O.D., In.	Length Inches	Approx. Wt., Lb.
TB-08	$\frac{1}{4}$	10	.08
TB-10	$\frac{5}{16}$	10	.13
TB-12	$\frac{3}{8}$	10	.19
TB-14	$\frac{7}{16}$	12	.28
TB-16	$\frac{1}{2}$	12	.44
TB-20	$\frac{5}{8}$	12	.53
TB-24	$\frac{3}{4}$	12	.61
TB-28	$\frac{7}{8}$	12	.88



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